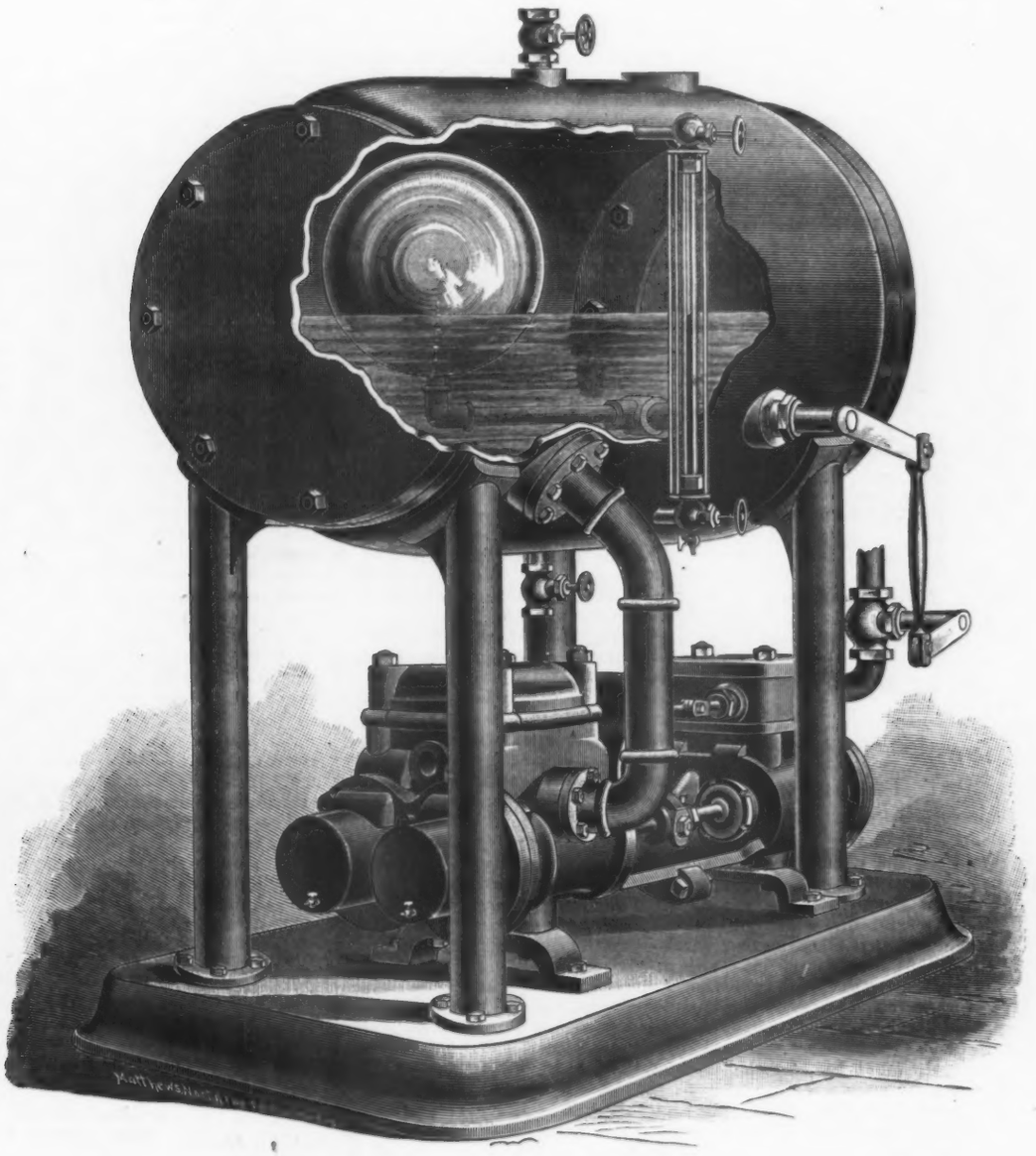
THE IRON AGE

THURSDAY, SEPTEMBER 27, 1888.

Duplex Pump with Receiving Tank.

We show on this page a duplex pump with receiving tank built by the Volker & Felthousen Mfg. Company, of Buffalo, N. Y., and designed for use in draining radiators, heaters, steam jackets, &c., and feeding the water of condensation direct to the steam boiler. It does away with the expense and annoyance of traps and returns the condensed steam to the boiler as fast as it accumulates in the receiver above the pump. The variation of the steam pressure does not affect it, and it stops the usual water hammer in pipes. The pump and receiver, moreover, serve a good purpose in regulating brine circulating in refrigerating machinery and other similar uses. The water cannot accumulate in any quantity, as it lifts a float which opens the steam-valve to the pump, thereby starting the pump, which forces it to the point desired. The details of the arrangement are clearly shown in the illustration.



DUPLEX PUMP WITH RECEIVING TANK AND AUTOMATIC ATTACHMENT, BUILT BY THE VOLKER & FELTHOUSEN MFG. COMPANY, BUFFALO, N. Y.

The Priestman Petroleum Engine in the United States.

Those of our readers who have more attentively followed the developments in connection with engines other than steam will be interested to know that arrangements are being made for the sale of the patents in the United States of the Priestman petroleum engine, which at present is performing very satisfactorily in England. Through the courtesy of Mr. Robert O. Ritchie, who represents the English syndicate now controlling the American patents, we were favored last week with an exhibition of two of the engines in actual working condition at 106 Washington street, New York.

One of the engines shown is rated at four and the other at one horse-power, and both strikingly illustrate the advantages of motors of their class, such as simplicity, ease of management and ready adaptation to any locality, great economy of oil, moreover, being a prominent claim made for the Priestman engine. So far as the mechanical details of the engine are concerned, we would refer our readers to a description published in our issue of June 14. We will briefly repeat here, however, that the engine is single-acting, with an explosion at every second revolution, the charge being lighted by a spark from an induction coil worked by a single large cell. A supply of oil sufficient for a day's work is held in a tank in the engine base, and from there is conducted through a spray-pipe to a vaporizer, which, when starting, is heated by a small lamp, but afterward by the exhaust. A suitable supply of air also is admitted to the vaporizer, the proportion of air to petroleum being adjustable, so as to insure a proper explosive mixture. The charge is taken into the cylinder at the outstroke of the piston and compressed at the next instroke. At the following outstroke it is fired, and the exhaust takes place during

the fourth stroke. The action in this respect is similar to that of the Otto gas engine. A valve in the inlet-pipe prevents the propagation of the explosion back into the vaporizer. There is no slide-valve, properly speaking, but simply an exhaust-valve, which is worked by an eccentric. To the eccentric rod is attached, by means of an insulating handle, a metal knob, which describes a path somewhat resembling an ellipse, and is so placed that once in every revolution of the eccentric—that is to say, once in every second revolution of the crank, it bridges two metal springs which are insulated from each other and from the framework of the engine, and which form the terminals of the primary circuit of the induction coil. By this means once every second revolution the induction coil is set going and the charge fired at the right moment. It is claimed that no lubrication is required for the cylinder, the petroleum vapor serving to keep the surfaces in good condition.

Any of the refined varieties of petroleum can be successfully used, and crude oil has also been used with the best results. As to the actual oil consumption, we have before us a report of a test made a few months ago by Sir William Thomson. The figures, which he obtained with an engine loaded by means of a brake, with slightly more than six horse-power, showed a consumption of 1.71 pints per hour per brake horse-power. The whole of the oil is consumed and not only the lighter portions, so that there is no useless residuum. In view of the fact that the engine is said to show great regularity of running, it would appear to be well adapted to electric lighting purposes aside from its general utility in other directions, and in fact we are told that this is one of the uses to which it has been put with eminent success. With an early sale of the patents, it is not unlikely that the manufacture of the engine will soon be carried on here, a result to which small power users will, no doubt, look forward with interest.

The Loomis Fuel Gas Plant at Tacony.

The Loomis Gas Machinery Company have nearly completed the plant built by them under the patents of Burdett Loomis, of Hartford, Conn., at Tacony, Pa., in connection with the saw and file works of Henry Disston & Sons, at that place, a suburb of Philadelphia. While this particular plant is housed in a corrugated iron building, 40 feet by 98 feet, a works of the same capacity would only require a structure of 22 feet by 60 feet. Among the numerous systems designed to meet the growing demand for gaseous fuel for domestic and factory use that of Mr. Loomis, has occupied a prominent place. For three years a Loomis plant for manufacturing illuminating gas has been in operation at Cottage City, Mass., while the first fuel gas plant has been running regularly for over a year at the works of the John Russell Cutlery Company, at Turner's Falls. The works at Tacony have been in partial operation for some time past, while a large fuel plant is being built in connection with the Addyston Pipe and Foundry Company, at Addyston, Ohio, near Cincinnati. A contract has been closed lately for a large plant for manufacturing gas for factory and city use for Akron, Ohio, an illuminating works for Kenosha, Wis., and a fuel plant for the Waltham Watch Company, at Waltham, Mass., to furnish gas for all their boilers, or forging, crucibles, annealing furnaces, soldering, tempering, &c.

The leading point in which the Loomis system differs from other methods of manufacturing water gas is that the generator is run by down draft during the period when the coal is being brought to incandescence to decompose the steam passed through it in an opposite direction to manufacture water gas. The process therefore consists of two distinct periods, producing two products—one, generator gas made during the period of "blasting" when air is drawn through a column of fuel downward by an exhauster; second, water gas, produced by allowing steam to enter from below into the column of incandescent fuel, being carried off by a series of tuyeres in the generator above the fuel line. The advantages claimed for the down-draft system are that when the coal is being made hot during the blasting period, preliminary to the manufacture of water gas proper, the volatile gases passing down through the hot coal are fixed. In other words, the troublesome tars, &c., are decomposed. The down-draft system, it is claimed, tends also to reduce clinkering, there is no poking from the top, and the coal is charged during the blasting whereever spots of fire begin to show.

The Tacony plant consists of four generators, having a 9-foot outside diameter, 6-foot diameter fire-box, and 14-foot hight, with a fire-brick grate and an air-tight charging hopper. Connected with the ash-pit is a vertical cooler, 2 feet in diameter and 18 feet high, the generator gas being drawn through its 30 tubes by a No. 3 Root's exhauster, the office of the cooler being to reduce the temperature of the generator gas made during the blasting period to 500 to 600 degrees. In this manner the injurious effects upon the exhauster of sudden and great fluctuations in temperature are avoided. The water in the cooler is used to feed the boilers, so that the heat is not wasted. The rest of the plant consists of a Heine boiler, set to be run with generator gas, which furnishes steam for two 9 x 12 engines, made by the Phœnix Iron Works, to drive the four exhausters, one engine being used for the day turn, and the other for the night shift. There was being built, too, at the time of our visit a set of retorts of special design for manufacturing illuminating gas with the water gas as a basis, the foundations for the purifier being completed while the last touches were being put to two holders, one of 20,000 cubic feet capacity for water gas, and one of 30,000 cubic feet capacity to be used for illuminating gas. Now it is being employed to measure the quantity of generator gas comsumed and made. We may mention that the company have laid over a mile of pipe in the village of Tacony, and that a number of houses have their connections completed for fuel gas. The company have fitted up a room with stoves, lamps, &c., to show the domestic applications of the gas.

Turning now to the results obtained, it is stated that the relative proportions of generator and water gas show a production of 130,000 to 140,000 cubic feet of the former and from 40,000 to 50,000 cubic feet of the latter, according to the character of the coal used. Any kind of bituminous or semi-bituminous slack coal may be employed. So far as the employment of anthracite culm is concerned, we are advised that since the Tacony plant was built specially for bituminous coal it has not been determined how far it is possible to go with it as a part of the mixture. Thus far the maximum has been two-thirds of anthracite culm and one-third of bituminous coal. The 6-foot generators at Tacony each have a capacity for gasifying 8 tons of coal per 24 hours, and it is estimated that the size now contemplated for subsequent plants, 7 foot diameter of fire-box, will convert 10 tons daily into gas. When running on generator gas alone as large an amount of steam is introduced into the generator as is consistent with a continuous run, so that the product is a gas which practically is intermediate between the ordinary Siemens producer gas and pure water gas. The Tacony plant, which was built under the supervision of Mr. S. T. Williams, general manager of the steel works of Messrs. Disston & Sons, has been used for some time past to test the value of fuel gas in its application to the different departments of these works.

At the time of our visit the striking differences in the convenience of using solid and gaseous fuel were well illustrated in the forge and hardening shops of the works. In the file forging shop a number of the gas and coal forges were at work, though the latter are being taken out as rapidly as possible. The contrast in cleanliness, ease of supervision, comfort to the men and uniformity of heating was remarkable, and even though the comparative cost has not yet been ascertained, these incidental important advantages would insure the employment of gas even if there were a balance against it. In the saw hardening department one furnace has been remodeled to use gas, and others are following. There, too, the same features are striking, being coupled besides with a decided gain in the amount of work one man can do and with the advantage that the entire handling of coal and of ashes is dispensed with, and that it becomes possible to economize considerably in floor space. For some time past Loomis generator gas has been used in a Siemens reheating furnace with a 7 x 12 foot hearth, used in connection with an 18-inch bar mill. According to the superintendent, its superiority over ordinary Siemens producer gas has been well shown in the smaller consumption of gas and in the more rapid and better working of the furnace. Permanent connections are now being made with the main mill, and within a week fuel gas will be used exclusively. Gas flues are being laid to connect with all boilers in the steel works, and in a few weeks they, too, will be fired with generator gas. Thus far the latter only has been employed. Later on a practical demonstration is to be made with the use of pure water gas in a Siemens furnace. It is claimed that the saving of labor in running these Loomis generators on generator gas over the Siemens producers is very large, one man doing the work of three; and the gas is made under pressure and can be carried to any number of furnaces, direct, without use of stack draft and the flow regulated perfectly.

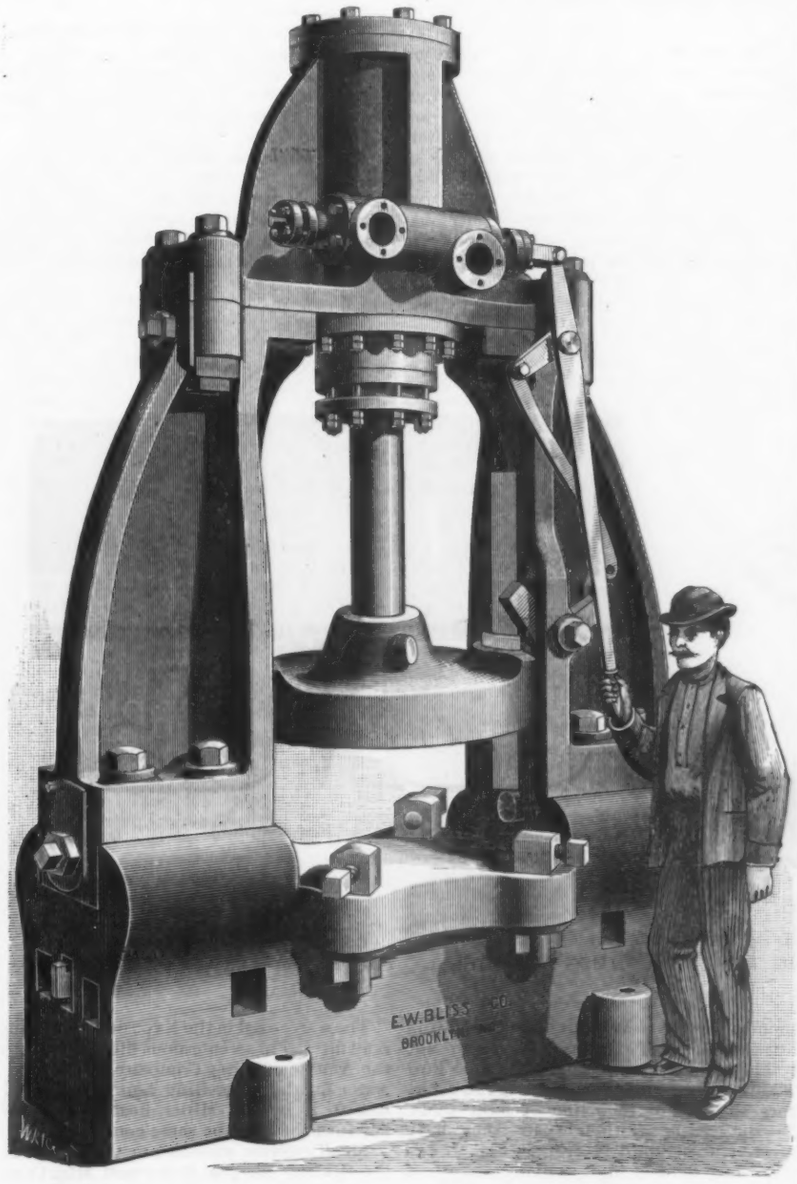
Southern Pig Iron Freights.—The Southern Railway and Steamship Association, under date of the 18th inst., have issued a new schedule of freight rates, to take effect on October 1st, the following being the principal rates, all per ton of 2268 pounds:

	Birmingham.	Chattanooga.	Sheffield and Florence.
Chicago, Detroit, Hegewisch, Grand Crossing, Peoria, Pullman, South Bend	$4.15	$3.90	$3.90
Allegheny, Bellaire, Pittsburgh, Steubenville, Wheeling	4.80	4.30	4.55
Cincinnati	2.90	2.40	2.65
Columbus, Dayton	3.65	3.15	3.40
East St. Louis, Belleville, St. Louis	3.40	3.15	2.95
Indianapolis, Terre Haute	3.40	3.15	3.15
Kansas City, Leavenworth, St. Joseph, Atchison	5.98	5.98	5.53
Louisville, East Cairo	2.65	2.40	2.40
Springfield, Ill., Bloomington	4.40	4.15	4.15

The Queen and Crescent route have issued a circular announcing an advance of 15 cents a ton over their tariff No. 7, dated August 1, 1888, to go into effect October 1.

New Steam Drop Press.

We illustrate on this page a drop press recently built by the E. W. Bliss Company, of Brooklyn, N. Y., for heavy stamping purposes. The requirements of the case for which it was designed called for a hammer, which, together with the soft metal force to be attached, should weigh 6000 pounds, and that a clear space of 48 inches between guides should be had. The excessive weight to be lifted rendered the use of any of the mechanical appliances ordinarily used for the purpose of catching the rebound and lifting the hammer too uncertain and too easily subject to derangement from constant shock to be considered available and recourse was had to direct steam pressure.



NEW STEAM DROP PRESS, BUILT BY THE E. W. BLISS COMPANY, BROOKLYN, N. Y.

The cylinder at the top is 16 inches bore by 24 inches effective stroke and is single acting. Steam is admitted at the lower end for lifting the hammer, but there is no pressure on top of the piston, except back pressure from the exhaust for the purpose of cushioning, as will be explained. The piston and piston-rod are forged from a single steel billet and the lower end of the rod, which is 7 inches in diameter, is turned slightly tapered and keyed into the forged iron hammer head. The piston has two grooves turned into it, in which are inserted four tool steel packing rings, as rings made of any other material would not stand the jar to which they are subjected. The piston, piston-rod and hammer weigh together 3000 pounds, and in operation an additional weight of 3000 pounds of soft metal may be attached. The port at the upper end of the cylinder enters 4 inches below the head, leaving this amount of space for cushioning on the up stroke. As the machine is operated with 100 pounds of steam, it was thought necessary to provide additional security against striking the head, especially as when the rings became a little leaky (and in this class of machinery it is impossible to keep it absolutely tight) the cushion pressure would be lost to some extent. To accomplish this the valve, which is of the piston type, and also fitted with tool steel packing rings, is so arranged that when steam is admitted to lift the piston the upper end of the cylinder is open to the exhaust through a port opening of only one one-thousandth of the area of the piston. This creates a back pressure on the up stroke which, when the piston reaches the point of passing the port, amounts to about 80 per cent. of the initial steam pressure. By this back pressure not only is the piston greatly retarded in its upward stroke, but, when cushioning occurs, it commences upon nearly full steam pressure, instead of upon atmospheric, and a leak would need be very serious and the upward tendency of the piston very persistent to neutralize this powerful persuader against further motion. When the valve is reversed, so as to exhaust the steam below and allow the hammer to fall freely, the upper port is open its full area and escaping steam enters from below the upper end of the cylinder.

The housings, which carry the cylinder and furnish a guide for the hammer, are secured to the bed by four bolts passing down through the bed to pockets, in which are the nuts, kept from jarring loose by rubber washers. The screws, by means of which they are adjusted laterally, to compensate for wear on the hammer, pass through wrought-iron poppets, let into the bed in the same manner as the four poppet screws shown in the cut for holding the die. The cylinder is secured to the housings in a similar manner. In order to prevent the hammer from descending when steam is turned off a latch is provided in the right-hand housing, as shown, which is so connected with the hand lever, which operates the valve, as to be moved out of the way when the hammer is allowed to fall. When steam is on no such support is necessary. The other general details are: Extreme width of bed, 7½ feet; weight of bed, 25,000 pounds; width between housings, 48 inches; extreme hight, 12 feet. Total weight, 45,000 pounds.

The Forty-Mile Limit for Pittsburgh Coal.—Several months ago the different railroads leading from Pittsburgh agreed to a rate of 90 cents per ton on all coal shipped within a radius of 40 miles of Pittsburgh to the lake ports. For some time past the Pittsburgh operators have claimed that firms outside the 40-mile limit are securing the benefits of the 90-cent rate, and these, it is said, can have coal mined at from 25 to 30 cents per ton cheaper than operators nearer Pittsburgh. At the last meeting of the Pittsburgh Railroad Coal Association a committee was appointed to protest against the abuse. The new scale of 79 cents per ton to be paid the miners goes into effect November 1, as per agreement of the Interstate convention of miners and operators held in this city the first of the year. It will be an advance of 5 cents per ton over the present rate.

A press dispatch dated St. Louis, September 18, reads as follows: On October 1 a general strike of the coal miners in the St. Louis district will be inaugurated, and unless the operators back down from the position taken to-day, 40 mines will be shut down. All the mines are located in Illinois, and Belleville is the center of the district. The mines are nearly all controlled by a trust called the Consolidated Coal Company. At a convention of the miners held Saturday, in East St. Louis, a demand for an advance of ½ cent per bushel was made. This meant an increase of 50 cents a day. To-day a committee waited on the trust, presented the demand, and met with a flat refusal. Then the committee gave notice of the strike.

Ground was broken in Pullman, Ill., on the 18th inst., for the construction of the Pullman electric railway. A complete circuit of the town will be made. The Van de Poele system will be used. The cars will be of the finest pattern made by the Pullman Palace Car Company. They will be about 30 feet long, and will contain smoking rooms, toilet apartments and other conveniences.

The Snow Belt Fastener.

We show on this page several modifications of a belt fastener, known as the Snow fastener, and put on the market by the Common Sense Belt Fastener Company, 176 Superior street, Cleveland, Ohio. The principle of the device is at once apparent from the engravings and requires little explanation.

Fig. 1 shows the simplest form, the pegs being driven through the ends of the belt, these being put on a block and clinched. By using a wooden block all danger of breaking the fiber of the belt is avoided. Fig. 2 represents a detachable tooth fastener made of Bessemer steel. The plate is case hardened so as not to bend or bruise in removing the teeth, the latter being annealed to bend and not break. The teeth are adjusted to the plate and riveted with a rivet punch or hammer, requiring only a slight head so as to be easily driven out with a steel punch. For light single belts single teeth fasteners are recommended, while for heavy or double leather belts two rows of teeth or double fasteners are desirable.

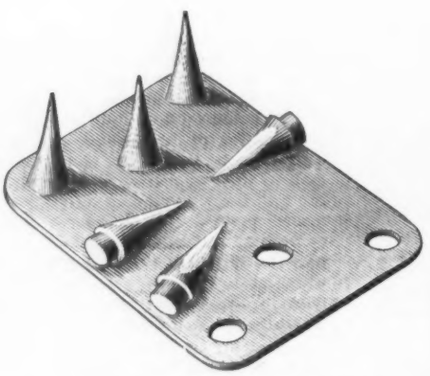


Fig. 2.—Detachable Tooth Fastener.

Fig. 1.—Common Sense Fastener.

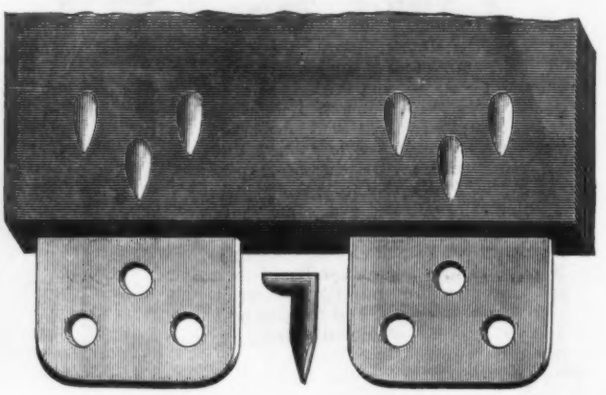


Fig. 3.—Steel Belt Coupling.

THE SNOW BELT FASTENERS, MADE BY THE COMMON SENSE BELT FASTENER CO., CLEVELAND, OHIO.

In Fig. 3 we show a coupling of special type applied to one end of a double thickness belt. The method of application is similar to that used in connection with the fastening illustrated in Fig. 2, hook rivets, however, being employed. In using this coupling the pegs of the belt are opened with a suitable tool, and the fastener plate is inserted to the proper depth. Points are then marked and holes punctured with a pegging awl. The hook rivets are then driven and clinched as already described.

Clark, Raffer & Co., of Chicago, who have for many years conducted an architectural iron business under the name of the Ætna Iron Works, have filed a bill against J. Louis Pfau of the same city, manager and secretary of the Ætna Iron and Steel Works, organized in 1886 to engage in a similar class of work. The complainants claim that the latter company, through the name they have adopted, have been receiving orders intended for the former, and that their business is thus being seriously interfered with. The court is asked to restrain the defendants from using a name so similar to that under which the complainants have long been known, and to compel an accounting and payment of damages. The Ætna Iron and Steel Works, however, have a charter of incorporation under that name, while Clark, Raffer & Co. were not incorporated under the name Ætna Iron Works, but merely adopted that to designate their establishment. The conflicting claims arising under this peculiar complication of affairs will give the courts a little trouble to solve, with exact justice to the interests involved.

Chicago Interstate Industrial Exposition.

The entries at the Chicago Exposition this year are not so rich in machinery and mechanical appliances as those of previous years. A few machines are shown in motion, but the great bulk of the exhibitors evidently preferred to make a display of actual products rather than illustrate how they were made. It is a rich collection, however, in almost every line of mechanical industry, comparing very favorably in that respect with its predecessors, and demontrating the possibility of keeping up an attractive array of exhibits from year to year.

The Iowa Farming Tool Company, Fort Madison, Iowa, have made a very satisfactory showing of their line of farm tools. In the center of their space they have erected a pyramid 8 feet square at the base and 30 feet high, which is covered with red cloth and hung from top to bottom with fancifully arranged samples of their hoes, forks, grain cradles, ox-bows, &c. A very handsome specimen of their tool rack, for use in displaying samples in stores, occupies a conspicuous position as part of the exhibit.

The Wheeler Reflector Company, Boston, Mass., have a neatly arranged pavilion hung with various kinds of lamps to show the different styles of reflectors manufactured by them. From the ceiling are suspended large reflectors with glass pendants, while the walls are filled with a great variety of lamps and reflectors intended for almost every use.

The Meriden Britannia Company, Meriden, Conn., have a very handsome pavilion, with a blue arched roof, black and gold posts, large plate glass windows, covering every side, and polished Tennessee marble panels in the base. The specimens of their work shown embrace the most artistic specimens of table-ware, worthy of the very effective manner in which they have been displayed to attract attention.

Brown Bros. Mfg. Company, of Waterbury, Conn., have a unique exhibit of vault and sidewalk lights. In the center of their section they have placed a framework of iron, 12 feet square and 2 feet high, studded with sidewalk lights. On this as a pedestal they have placed a pyramid of iron framework, about 4 feet high, with its faces also composed of sidewalk lights. Samples of vault covers, coal-hole covers and similar work are grouped about the central attraction.

Schenck's Adjustable Fireback Company, Chicago, Ill., have a large display of Westphal's revolving screw, bolt and shot cases, and revolving self-draining flower stands. These are shown in a number of sizes, and form a very striking exhibit.

The American Well Works, Aurora, Ill., have a well rig in place to show their method of sinking wells. They also exhibit samples of their well-boring appliances. A windmill of their latest pattern is a conspicuous part of the display.

The water used in the Exposition Building is all filtered in an enormous filter erected by the American Filter Company. The feed-water for the exposition boilers is heated to 210° F by the Miller heater and purifier furnished by the same company.

Small electric motors are displayed by the Belding Electric Motor and Mfg. Company, of Chicago, and the C. & C. Electric Motor Company, of New York. The Belding Company have a number of their motors operating fans, sewing machines, &c., as a special exhibit. The motors shown range from ⅛ to 1 horse-power. The C. & C. Company have their motors distributed among the operators on sewing machines engaged in turning out fancy work in several pavilions.

The Chapman Valve Mfg. Company, Indian Orchard, Mass., make a decidedly attractive display of their valves. They have them handsomely painted, and the central feature of the section is a stand having four semi-circular shelves, tapering in size from the bottom to the top, each filled with valves of corresponding size. Groups of valves of various patterns are placed around the base of the stand.

The Machinists' Supply Company, Chicago, have an entire section filled with lathes, drills, portable forges, and show cases with small tools under cover.

Borden, Selleck & Co., of Chicago, exhibit one of Harrison's conveyers for automatically handling coal, ore, grain, &c.

F. Hainsworth & Son, proprietors of the Unique Wrought-Iron Works, show a large number of samples of ornamental railing of peculiar pattern manufactured under their patents. A great deal of the iron is crimped throughout, even the small circles, scrolls and bends being formed of crimped strip iron. Their work also comprises frames for grates, grate guards and irons, ornamental arbors and other articles in highly ornamental designs.

The F. P. Smith Wire and Iron Works exhibit a great varicty of wire goods, illustrating the almost endless uses to which wire can be adapted in the hands of the ingenious workman.

The Expanded Metal Company, of Chicago, make a good display of their special product. They have inclosed their space with a fence and gates made of expanded metal and have hung in a conspicious position a card bearing in large letters the notice: "This is not wire." In addition to fencing they exhibit arbors, tree boxes, mats, lawn furniture, &c., made of their metal.

The exhibit of the Marinette Iron Works Company, Marinette, Wis., is quite extensive, as their line embraces such a variety of articles. Among other things shown by them are the Hutson Giant Fire King, which is a one-man chemical engine, mounted on two wheels, with hose reel, &c., complete; the Michigan Lubricator Company's improved sight feed lubricator; the Montgomery automatic and compound grease cup; Brock's patent chain-pipe wrench; the Penberthy improved automatic injector; brass and iron valves, pipe fittings, &c.

The Nye Steam Vacuum Pump Company, of Chicago, exhibit a large number of their pumps, intended for mining, irrigation and wrecking purposes, and for pumping sand and gravel. Some of them are shown in active operation, discharging immense quantities of water and demonstrating their undoubted efficiency.

The steam engines used in operating the machinery of the Exposition, running electric lights dynamos, &c., are the Buckeye and the Russell engines.

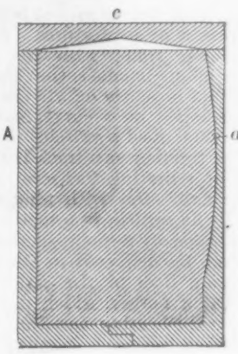
The Union Indurated Fibre Company, New York, make a very fine exhibit of the ware manufactured by them from wood fibre. Pails, liquid and dry measures, wash-basins, water-coolers, tubs, keelers, milk pans, &c., are shown in great variety, and they are arranged in a way to attract the notice and excite the interest of those who come within range of it. The remarks made by visitors concerning it show that this ware is still a matter of great curiosity to a considerable portion of the population of the country.

Exhibitors of other goods of interest to our readers are as follows: David Bradley Mfg. Company, agricultural implements; Clive Mfg. Company, hardware specialties; Cornell Engine Company, gas engines; Clinton Wire Cloth Company, Clinton, Mass., wire cloth; Chemical Fire Extinguisher Company; Corrugated Elbow Company, Cincinnati, Ohio, stove pipe; Copeland Engine Company, Camden, N. J.; Harden Hand Grenade and Fire Extinguisher Company, New York; Charles Kaestner & Co., Chicago, brick machinery; C. Sidney Shepard & Company, Buffalo, N. Y., tinware; Jenney & Graham Gun Company, guns. Stoves are also well represented by a number of the leading manufacturers.

The fifty-second meeting of the American Institute of Mining Engineers will be held at Buffalo, N. Y., beginning on Tuesday evening, October 2, 1888. Dr. Julius Pohlman, director of the Museum of the Society of Natural Sciences, is secretary of the Local Committee, and correspondence concerning the local arrangements, hotel accommodations, &c., should be addressed to him.

The Disston Steel Works.

Operations are being actively pushed to rebuild that portion of the steel works—a part of the file and saw manufacturing plant—of Disston & Co. which was destroyed by fire some time since. The crucible steel department and the sheet rolling mill was the property partly destroyed by the fire. The disaster has been seized as the opportunity for extensions and improvements. The hight of the building has been increased by 8 feet, and the Scheffler Bridge Works are completing a handsome iron roof of two spans, one 105 feet and the other 93 feet 10 inches, the former being over the rolling department. The new building is 198 feet 10 inches wide by 305 feet long. The crucible steel works have three 24-pot furnaces, while the sheet-rolling department contains four trains. The 28-inch plate train is driven by a 28 x 60 inch I. P. Morris engine, while a 22 x 48 inch engine from the same maker drives one of the two 16-inch trains of the mill. The second 16-inch and a 20-inch train are driven by a vertical 28 x



Mold for Solid Steel Ingots.

44 inch engine. A good deal of this machinery suffered heavily from the fire, and important parts of it had to be rebuilt. The mill is equipped with the necessary complement of shears and punches, and the heating furnaces, whose waste heat is utilized by Haselton boilers. In addition to them a 600 horse-power Heine boiler is being put in.

The bar mill is a later enterprise of the Disstons. It contains an 18-inch mill, three-high, with five stands of rolls, and a 9-inch train, just completed; also with five stands of rolls. Each of these is driven direct by a separate Porter-Allen engine. Steam is furnished by two batteries of 300 horse-power Heine boilers. This mill, being covered with an iron roof, was not injured by the fire. At the time of our visit one train of rolls in the sheet mill and two melting furnaces were running under temporary roofs, and in a few weeks the largely remodeled mill will be in operation.

A new water works is also being erected at Tacony, the plant consisting of a compound condensing Worthington pump of 2,000,000 gallons capacity, to supply both the factory and the village with water.

From a technical point of view, one of the most interesting features in connection with the Disston Steel Works is

THE WILLIAMS PROCESS OF MAKING SOLID INGOTS,

which has been in use for a considerable period. The process was patented by Mr. S. T. Williams, on December 8, 1885, and at the time of the fire 19 presses were in operation, while 12 more were being built, the percentage of split saws having been reduced to a minimum as the result of their use. Piped saw plate ingots rolled into saw plate and manufactured into saws do not show their defects until the last stages of manufacturing large circular saws are reached, the unsound ingot showing its defect in the splitting of the saw plate. The loss, of course, is heavy, since the final stage of manufacture is reached before the defect is detected, and the article must wander into the scrap heap. Mr. Williams casts the steel into a mold hollowed out in the manner shown in the accompanying illustration.

Into a mold of the above character the melted metal is poured, and as quickly as possible thereafter a hot cover or plug, *c*, is placed on the top of it. The cover may be made of any suitable material; but a refractory material is the best. The cover is either put on in such a position as to leave a small space between it and the metal in the central portion of the top of the casting, or the bottom of the cover may be hollowed or dished out to form a cavity, as may be deemed best in practice. As soon as the metal in the mold has set sufficiently to hold the molecules together, the mold is opened on the side or sides next to the belly or bellies (for the mold may be hollowed out on both sides instead of one only), and a pressure-plate is inserted with its flat side against the belly and its convex side opposite the hollowed-out portion of the mold, and the hollowed-out portion of the mold put in plane and pressure applied. The metal composing the belly portion of the ingot is thus forced inwardly, and the more movable portion of the ingot located at its central part is thereby forced upwardly or outwardly into the space or chamber beneath the hot cover, filling the same, and thus forming a head of metal kept in a soft or liquid form by the heated cover, and ready to feed into any pipe or cavity which may form in the ingot as it cools. After sufficient pressure has been applied to fill the head cavity the pressure is more gently continued for some minutes, to hold the metal well together, in order to prevent the pipe or cavity which is being fed from the head from becoming any larger than can be avoided.

The pressure-plate, it will be observed, is constructed with one side convex and the other plane. The convex side is preferably of such shape and size as to just fill the hollowed-out portion of the mold, and the ingot, when cooled, will thus have a plane face on the side where it originally bulged out; or, if it is not necessary that the ingot should have a plane surface, an ordinary plane-faced mold can be advantageously employed and the pressure-plate inserted with its convex side toward the ingot. The head for supplying the pipe is kept hot by the hot cover and remains in a liquid state sufficiently long to feed the pipe until the metal ingot has become cooled and set to the very top. It is the better plan to put a slight pressure on the top of the plug to hold it in place; but this is not necessary if the pressure on the pressure-plate be applied very evenly and gently.

The pressure is applied with the aid of a hydraulic press of special design. We are informed that the result of the introduction of the method has been not only to avoid the dangers growing out of piped ingots, already alluded to, but that the quantity of steel cut from the heads of ingots has been reduced to 5 per cent., or practically to what is needed to trim them before rolling.

The Ontario Mining Commission, during a recent tour on the north shore of Georgian Bay, discovered mines represented to be very rich in copper and nickel, and, 80 miles west of Port Arthur, is an iron district which promises to be among the richest in America.

Those Exported Boiler Tubes.

Some time since considerable capital was made out of the fact that a Boston boiler tube maker had exported a small lot of boiler tubes for one of the foreign manufactories of the Babcock & Wilcox Company. Writing from Haarlem, Holland, Mr. George H. Babcock, of the firm, gives the facts and comments on them in a letter, from which we quote the following:

I was surprised to see that that transaction was instanced as an evidence that the American system of protection to home industry was a failure and that the boiler tube manufacturers would be better off under free trade. Now, while boiler tubes are our "raw material," and, in common with other manufacturers, it would be for our interest to have our raw material duty free, provided the duty was retained upon boilers, our manufactured product, yet I fail to see how the fact quoted is evidence of the approach of that desired condition. It is true that we did order a bill of steel boiler tubes to be shipped from Boston and delivered at a slightly less price than we could buy the same quality of tubes in Glasgow. But this is not so strange when we consider that the price in Glasgow is abnormally high, owing to a combination among manufacturers, and represents a very large profit on the cost of production.

The Boston house, getting its stock at foreign prices, plus 10 per cent. duty, found it could in this case afford to realize enough less profit than the foreign manufacturers were demanding to balance the extra cost of labor, duty on material and freight. Were the makers of Scotch tubes so disposed they could undersell the price paid the Boston house by probably 40 per cent. and still make as much profit as the Boston makers did on this transaction. In proof of this we are buying in Glasgow certain tubes which do not come into the combination rates at prices which would soon bankrupt any American manufacturer.

I note your remark that "without the 45 per cent. that must be paid on the same steel when used for goods sold in this country they could be sold so much cheaper here, the quantity made would increase, more labor would be employed, and every one would be benefited—in short, the exactly opposite effect would be secured from that produced by a 'protective tariff.'" That is, assuming the duty to be taken off the "steel skelps," the tubemakers' "raw material," and retained on the tubes, his "finished product." The same might be true, possibly, of every manufacturer, provided it did not at the same time act reversely and to a counterbalancing extent on some other product. In the case supposed, would not the labor thrown out of use in providing the "skelps" more than equal any additional labor employed in making more tubes? But the steel rolling mills thus stopped would decrease the demand for boilers and boiler tubes, and so would there not be fewer made rather than more? and so labor would suffer while no one is benefited.

My experience of 20 years shows that that amount of reduction would not cause any perceptible increase in the demand either for tubes or boilers. The Babcock & Wilcox Company are probably the largest user of boiler tubes in the world. Their sales in June last alone in Europe and America required the use of 1,000,000 feet of 4-inch tubes. These we buy in the United States, Scotland, Germany and France, as we have occasion, and, of course, buy as cheaply as anybody. Now, though the American maker pays twice as much for his labor and much more for his materiel, he sells within 10 to 20 per cent. of the price in free trade countries, notwithstanding the fact that he is "protected" by a tariff amounting to about 100 per cent. on the cost of production. This means that he makes less profits than the man who manufactures under free trade, while the entire benefit of "protection" is reaped by the laborer. It means another thing also—that there is no truth in the often-repeated statement that a tariff increases the cost to the consumer equal to the amount of the duty. Tubes have been sold in New York within the last five years at a price less than the amount of the duty on the same tubes if imported, and they can be bought to-day at a small advance upon that figure. The effect "produced by a protective tariff" is "the exact opposite" of that commonly attributed to it by the advocates of free trade or a "tariff for revenue only." It seems, in practice, to reduce the cost to the consumer of most articles of necessity, and many of luxury, while it enhances the rewards of labor and reduces the profits of manufacture.

The New Edgar Thomson Rail Train.

Since the completion of the new rail train, the Edgar Thomson Steel Works, Braddock, has become the Mecca of rolling-mill men. Lately a representative of *The Iron Age* paid a hasty visit to that plant, which served to give at least a general impression of its features. From the old blooming train, with its adjacent bloom chipping hammer, the blooms are delivered on a series of driven rollers, which, arranged on a curve, carry it to what may be termed a switch. They then reach a car running on a track back of the long line of reheating furnaces, of which there are five, each with nine working doors. By an endless iron rope wound on a drum driven by a small special engine the car may be delivered in front of any one charging door of the series. Every furnace has a pusher, which delivers the bloom into the heating furnace. In front of the heating furnace is a similar arrangement for drawing the heated blooms. A special engine runs an endless wire rope, to which is attached a car. Upon the latter the drawing apparatus, with an ingenious grip, deposits the bloom. The latter is conveyed to the driven rolls, which run the bloom upon the table of the first train.

Practically Capt. W.R. Jones has divided the ordinary three-high rail train into three, the first five passes being made in one train, the second five in a second train to which the first delivers directly, and the last finishing pass being made in a third train. A crane commands the latter, so that the finishing rolls can be rapidly changed. Each train is driven by its own independent engine, and is practically automatic, one man handling the levers which lift the tables, turn the bloomer, &c. From the table of the first train the billet goes to the second; from there by driven rollers to the finishing train. From the latter the rail is carried along by driven rollers to the hot saws, the metal traveling in all these operations along the axis of one long building. The hot beds are located in a wing at right angles to it, and then are taken back in the direction of their length into the drilling and pressing building, which is parallel to the rolling mill building, they traveling then in a direction opposite to that in the latter. The finished rails are pushed sideways out of this building to the cars on which they are shipped. The boiler house has two batteries of 12 boilers each, and we noticed particularly that along one entire side of the rolling mill proper is a bench upon which lie the rolls. The whole arrangement is a radical departure from all former types, and it needs only a glance at the never ceasing procession of blooms entering at one end and of finished rails passing the saws to appreciate the enormous capacity of the plant. It is rated at 1000 tons of finished rails a day. Its record even now is 962 tons, and there is probably no exaggeration in the remark made by the engineer of one of the leading Eastern mills whom we happened to meet just after he had, for the first time, seen the plant, that it would not be a matter of surprise to him if the new mill would arrive at a record of 1500 tons a day. The mill is certainly an enormous stride in advance, and being practically automatic would seem to represent the possible climax of labor-saving in that direction. The impression is created by an inspection of it that this new rail mill overbalances in capacity the other parts of the plant, that one or more new blast furnaces, an enlargement of the Bessemer steel department, and notably an addition to the blooming capacity would become necessary in the not distant future. We repeat that this is merely an impression, and that the idea is thrown out without any accurate knowledge of the relative capacity of the different parts of the plant.

Few changes have been made in the other departments. At the blast furnaces one metal mixer is in use and a second one is being built. On both sides of the Bessemer steel works a hydraulic pusher has been put up, to push the ingots out of the molds, no effort being now made to strip in the pit.

Industrial Jubilee at Louisville.

On the 5th inst. the people of Louisville held a grand demonstration to commemorate the industrial and commercial progress made by the city within the past decade. The business of the city and its enterprising suburbs has grown so rapidly of late years that the citizens may well take pride in the success of their endeavors to put the metropolis of Kentucky high on the roll of the progressive cities of the country. To emphasize the forward movement they have made, and to let the outside world understand something of its importance, this industrial jubilee was planned by the citizens who have taken the most active interest in stimulating the city's growth in manufacturing industries. The active agencies with which they are identified are the Commercial Club and the Board of Trade. These bodies have done so much toward building up the trade of Louisville that they can properly be mentioned as examples of energy and enterprise worthy of emulation by similar organizations in other cities. The growth of Louisville's business is shown by the last annual report of the Commercial Club, which enumerates 65 manufacturing establishments, 27 wholesale commercial houses, and 291 retail commercial establishments added to the business interests of the city in the previous 12 months. Quite a number of these are directly traceable to the influence of the two organizations mentioned. Since 1880 the annual volume of business is estimated to have increased $150,000,000.

The industrial demonstration which took place on the 5th inst. is reported by observers to have been a magnificent spectacle, far superior to the usual advertising pageants which so often masquerade under that name. The various business interests of the city entered with spirit into the proper observance of the real purpose of the display, and originality was manifested with most striking effect where it was least expected. The Louisville dailies, particularly the *Courier-Journal*, contained glowing reports on the following day of the magnificent success which had been scored by those who originated and managed the great jubilee. Special editions were issued, calling the attention of visitors and of the outside world to the advantages of Louisville, and to the great natural wealth

of the State of Kentucky to which it virtually holds the key. The success of this celebration will stimulate the efforts of the business men of Louisville still further to push forward their plans for greater growth and wider influence, even though it may not directly attract capital and increase investments.

The manufacturers of Louisville anticipate a decided increase in the business of their city with the advent of cheap fuel, which is promised by the projectors of natural gas-pipe lines from wells in Meade County, 25 miles southwest of Louisville in an air line, but 30 miles distant by the route surveyed. The wells now flowing produce 16,000,000 feet of gas daily, and the supply can be largely increased whenever it is demanded. It is announced that one company has already arranged to lay pipes between its wells and the city, making its operations an assured fact. The supply of natural gas at low cost in unlimited quantity would be a great boon to Louisville, although it is located within easy reach of Kentucky coal fields, and also receives large supplies of coal from the upper courses of the Ohio River. With such a fuel Louisville would take greater strides than ever toward industrial greatness, and its jubilees of future years would totally eclipse the glory of the recent celebration.

Notes from Providence, R. I.

Charles Frederick Herreshoff, whose funeral took place in Bristol recently, was father of one of the best known families in Rhode Island. The late octogenarian was born in Providence and removed to Bristol from the old farm in 1856. A graduate of Brown University, he was, with the exception of Bishop Howe, the only survivor of the class of 1828. He was deeply interested in boats and boating—a characteristic that was inherited by two of his sons, John B. and Nathaniel G. of the Herreshoff Mfg Company, which has given Bristol celebrity as the town which furnishes the best and fastest steamers in the world. When the Company was in its early days the deceased helped model some of the fastest boats built at the Herreshoff shipyard, and in connection with the death of this well-known citizen a short account of the industry bearing his name may be of interest.

The president of the company, John B. Herreshoff, is one of the remarkable men of the country. For years he has been blind, but the misfortune of loss of sight has not impaired his capacity for practical work, and as president and treasurer of the company he is as active and efficient as though he has the keenest eyes. An instance of this was recently mentioned in the New York *Sun*. About ten years ago he received a telegram from one of the South American consuls in New York, asking him to come to his office down town at a certain hour. He went and found several representatives of the South American Government. They wanted three torpedo boats of a novel design built, and they wanted them built in sections, so that they could be shipped to their destination and there put together. They wanted several odd conditions in the boats, and then they wanted to know for how much Herreshoff would build them.

"I must have time to think it over," he said.

"How long a time?"

"Oh, 20 minutes."

Twenty minutes for a blind man to consider the plans and specifications for these topedo boats—to consider them without pencil or paper—to perforce roll them over carefully and minutely in his head! But he did it. In 20 minutes he had made a mental estimate of what they would cost; he got the contract, and they were at a specified time packed and ready for shipment. That was a remarkable incident, but John Herreshoff is a remarkable man, and he has built some remarkable boats.

The Herreshoff children took to boats, and it isn't strange, therefore, that John Herreshoff began whittling out boats as soon as he was old enough to manage a jack knife. In his fifteenth year he built a good sized craft for sailing on the bay. About this time he lost his sight; gradually a film came over his eyes, but he went on building boats just the same, but instead of studying the grace and strength of lines by his eye, the matter became to Herreshoff at once a more abstract study, a mental calculation. He had the task before him of carrying in his mind the models he worked upon. The objects he had seen with his eyes in the first 15 years of his life he could summon up into his mind again. Under the enforced habit of mental activity, without the interruption and suggestion of outside objects, his mind grew to be one of remarkable concentration and acuteness. He became able, for instance, to set up before himself, from a careful description, a piece of machinery, and to explain its workings and it faults. His sense of touch developed to a wonderful sensitiveness, too. He learned to recognize the power of lines by rubbing his fingers slowly over them, and how well he succeeded in finding the good and discarding the bad has been shown by many a craft built in the early days of his business, which made a record on the Narragansett like the old Qui Vive, for several years the fastest boat on the coast, and the Sadie, a 52-foot sloop, which was sold to Mr. Burgess.

But this was when Herreshoff was building only sailing vessels. It was not until after 1873, when Nathaniel Herreshoff became interested with his brother, that the Herreshoff steam vessels made their appearance. Mr. John Herreshoff had been thinking over the coil boiler idea for some time, and when it was applied to steam craft it was so successful that the building of sailing vessels was at once abandoned. The industry at once jumped into prominence, and the shops were used for making every part of the vessel. John B. Herreshoff became the president and treasurer of the company, Nathanial Herreshoff the general superintendent and designer, Charles Young the secretary, and Albert Almy chief of construction.

There is no doubt that in the public mind there is a partial misapprehension of the part the third Herreshoff takes in the construction of boats in the shops of the company. The average individual who has heard of Herreshoff would very likely expect to find him industriously at work upon a model or laying down the lines in some ingenious way for a new boat. But there are a big boiler shop, engine shop, boat shop, repairing shop and docks, all with their quota of men, whom John B. Herreshoff, as the president and head of the company, controls.

Mr. Nathaniel G. Herreshoff, who is not blind, like John and others in his family, is the designer. He works out the models, makes the calculations, &c.

The Narragansett Electric Lighting Company have begun the construction of a new station at the foot of Elm street, on the river front, where a lot of land 200 x 300 feet, has been bought, with a wharf frontage of 200 feet. The contracts are not all concluded yet, but the foundations are in for the dynamo-room, 60 x 200 feet, a single-story structure, to be built of brick, with brown-stone trimmings and an iron roof. The pile foundations are also down for the (tack, which will be a 14-foot flue, octagon in section and 200 feet high. The boiler-room will be in a separate building, across a driveway, and coal pockets will be built over the boiler-house, into which coal may be delivered from vessels with but a single handling. The premises are arranged so as to allow of duplication of both the power and dynamo houses if necessary, and the lot will afford opportunity for the establishment of one of the largest stations in the country.

The Armington & Sims Engine Company, of this city, are making a number of engines for the Navy Department, the engines to be coupled direct to the dynamo. But a small space is required for their double engine, and the weight of the whole plant is very moderate. The company report great success in the use of this engine.

The summer travel on all the railways reaching town has been noticeably heavy. The Old Colony trains have been run with full seats, and the August mileage on the New York, Providence and Boston Road was 7000 miles in excess of the record.

The new steel yacht Valleymena, building by the Herreshoff Mfg. Company for George S. Brown, of Baltimore, is receiving her machinery and will soon be launched. She is 148 feet in length, with an 18-foot breadth of beam and a 7-foot draft. Her engines, also built by the Herreshoffs, are of a quadruple expansion type and are beauties of simplicity and strength, capable of 800 horse-power. The woodwork is of highly polished quartered oak, and there are five water-tank bulkheads. She will cost Mr. Brown about $70,000 as she comes from the Herreshoffs hands.

LEONIDAS.

Tests of Steel Eye-Bars.—The Edge Moor Iron Company have lately made a number of tests of steel eye-bars manufactured by Carnegie, Phipps & Co., of Pittsburgh. The diameter of the eye in all was 12½ inches, while the diameter of the pin-hole was 4.96 inches. The first two 15 feet long and the second two 18 feet:

	1.	2.	3.	4.
Per cent. excess, Eye A	59.6	56.8	56.1	62.5
Per cent. excess, Eye B	55.0	59.7	56.6	56.2
Size of bar	5 x 1 5-16	5 x 1⅞	5 x 1⅛	5 x 1
Length, back to back, of holes	ft. in. 16 11	ft. in. 16 11	ft. in. 29 11⅛	ft. in. 32 6¼
Elastic limit, pounds	36,520	36,700	36,740	39,550
Elongation of hole, A	0.35	0.54	0.75	0.74
Elongation of hole, B	0.40	0.76	0.56	0.57
Elongation 8 inches, per cent	41.2	39.2	39.6	37.5
Elongation total length, per cent	In 15 feet. 13.1	15.3	In 28 feet. 10.4	11.4
Reduction of area, per cent.	51.5	49.0	46.7	43.3
Ultimate strength	64,030	64,680	66,140	63,700

The fracture of the first two eye-bars was capped and silky, while that of the second two was 45 per cent. silky. In the first the fracture took place 3 feet 11 inches from the back of pin-hole B; in the second, 3 feet 3 inches; in the third, 16¼ inches from pin-hole A, and in the fourth, 2 feet 9 3/16 inches from pin-hole B.

The International Fair at Buffalo has given birth to an extraordinary newspaper sheet called the Buffalo *Express Extra*, comprising 60 pages, printed in a choice style of typography, and illustrating in its descriptions a large number of the business concerns in the city, stove manufacturers, engine builders, &c., as well as presenting photographic reproductions of a life-like character of several score of representative business men in all departments. Altogether, as a souvenir it is of no mean order, even in its historical features, which are duly set forth with maps, diagrams and reminiscences of early days, not omitting a portrait of Red Jacket, the Seneca Chief and orator.

Waterhouse Dynamo and Regulator.

In order to explain a new method of regulation in electric lighting for which patents have just been allowed, we illustrate on this page the system adopted by the Waterhouse Electric and Mfg. Company, of Hartford, Conn.

In Fig. 2 we show a Waterhouse dynamo with a closed circuit armature, A. On the commutator C are three brushes; *a* and *b* are the main circuit brushes and *c* the auxiliary brush. From the positive brush *a* the current passes to the conductor around the field magnets F to the resistance R. The current from the auxiliary brush *c* passes directly to the resistance R, leaving the field magnets out of circuit. The current from both circuits (field and local) joins at R and passes to the lamps, the current on the lamp line being the sum of the two. The amount of current in the field and local circuits is in proportion to the resistance R in each. The brushes have a fixed position.

There is in every dynamo a point of maximum commutation on the armature which changes with the resistance on the lamp line, moving with the rotation (toward brush *c*)when the resistance decreases and back when it increases. This affects the current in the local and field circuits as follows: When lights are turned out the line resistance is decreased and the maximum point moves forward and forces more current out of brush *c* and less out of brush *a*. This reduces the current in the field magnets and the E. M. F. in the circuit and consequently the power required to operate the dynamo. But the current on the lamp line remains constant, because the local circuit is increased proportional to the decrease of the field circuit. The remaining lamps therefore retain their full brilliancy, while the current cannot increase and destroy the apparatus. Thus the very tendency of the machine is to perfect regulation without the aid of a mechanism, but when to this is added the simple regulator, which makes the regulation instantaneous by assisting the current to pass out at brush *c* and opposing its passage around the field magnets by way of brush *a* when lights are cut out, and forcing it out at brush *a* around the field magnets by opposing its passage out at brush *c* when lights are put in the circuit, the efficiency of the method can be appreciated.

The regulator is illustrated by a slide in Fig. 2, controlled by a solenoid. Any tendency of the current to increase raises the contact, and the result is a decrease of resistance in the local circuit and an increase of the resistance in the field circuit. More current will therefore flow through the local circuit and less through the field circuit. The generating capacity of the dynamo is instantly reduced and any tendency to produce a current above the standard is overcome. Should the tendency of the current be to decrease, say by a reduction of the speed of the armature, the slide lowers, increasing the resistance in the local and reducing it in the field circuit. More current will then flow around the field magnets and less out on the local circuit. The generating capacity of the dynamo will therefore increase to maintain the current at standard. It should be stated that the use of resistance for balancing the field and local circuits is a small amount compared to that used by the lamps, and is not interposed, as can be seen, for the purpose of compensating for lamps turned off. The Waterhouse regulator varies the E. M. F. directly with the resistance of the lamp line, producing self-regulation and maintaining on the lamp line the standard current, whether one lamp or the full number are burning. By this method, as the lamps are cut out the current is reduced in the dynamo. Fig. 1 represents the complete machine, to which this method of regulation is attached, and plants are manufactured from three arc lights and up. The light produced is very steady, and entirely satisfactory for inside or outside illumination, and it is now in use in a large number of the representative mills of the country.

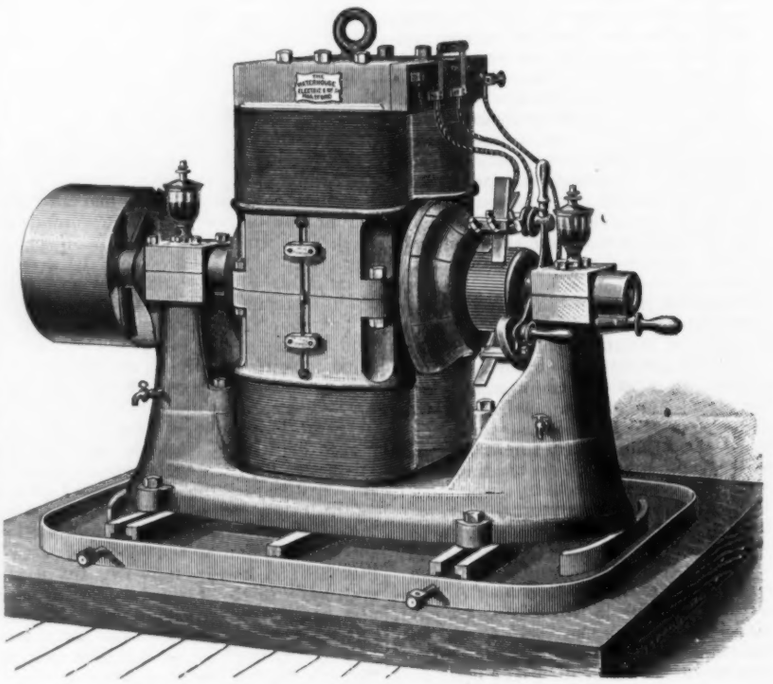


Fig. 1.—General View of Dynamo.

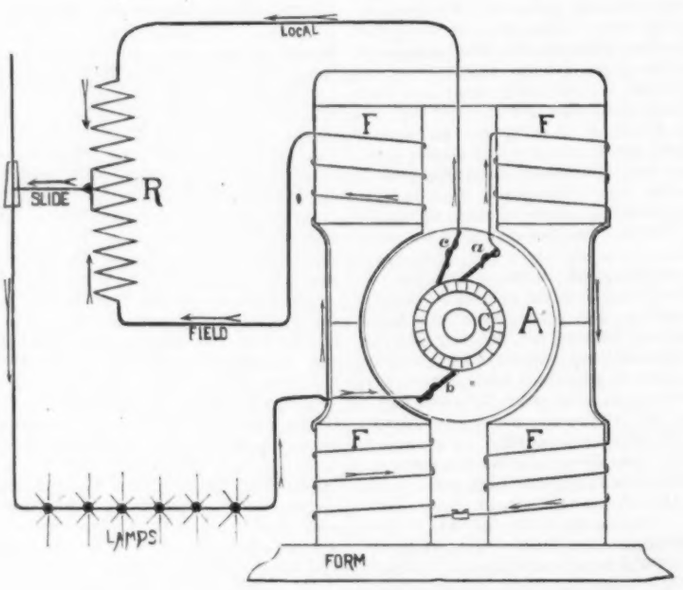


Fig. 2.—Details of Regulating System.

THE WATERHOUSE SYSTEM OF DYNAMO REGULATION.

The Dynamite Cruiser.—The dynamite cruiser Vesuvius is being finished, both below and on deck, and little remains to be done but to complete the apparatus for firing the pneumatic guns. The engines have been tested by dock trial and gave very satisfactory results at 220 revolutions per minute. This will doubtless be the fastest vessel ever built by Cramps. Her hull is of beautiful design and all the power possible has been put in her. She is 246 feet long, 26 feet 5 inches beam, 14 feet deep; mean draft, 9 feet; displacement, 725 tons. Her motive power consists of two triple-expansion twin-screw engines, developing about 3200 indicated horse-power. There are four cylinders to each engine, the high-pressure is 21½ inches diameter, the intermediate 31, and the two lower pressure cylinders 34 inches diameter. The engines are 20 inches stroke. There are four locomotive boilers 9 feet in diameter by 19½ feet long. They are to carry 160 pounds steam working pressure. The vessel is guaranteed to make at least 20 knots.

A Modern Boiler Works.

The boiler works of John Mohr & Son are located at 32 Illinois street, in the heart of a large manufacturing district of Chicago, and occupy a site having a front of 143 feet and a depth of 216 feet. Mr. Mohr, the senior partner, was formerly connected with the boiler department of other works, but withdrew in 1882 to operate independently. He has six sons, all of whom have been brought up in the boiler trade and who have charge of the several departments. At these works anything is built that can be made of plate iron and steel, but special attention is given to rolling-mill and blast-furnace work, and marine and general boiler work. Within the past year expensive machinery has been added, and further improvements are in progress.

Throughout the establishment the saving of labor is carefully studied. Heavy plates are carried from one part of the works to another either by overhead tramways or by elevators running between floors on different levels. As the plates are received they pass to the drillroom, then to the bending-room, next to the riveting-room, and finally to the finishing shop. The drillroom contains a number of the usual tools, but, in addition, there is a machine which will punch holes up to 6 inches in diameter through inch plate, or it can be used for punching holes of the smallest size. Power is furnished to operate the machinery in this and adjoining departments by a Corliss engine, 12 x 36 inches, built by the Weisel & Vilter Mfg. Company, of Milwaukee. From this engine rope transmission is used to convey power 83 feet distant to a shaft at the farthest end of the building in which it is situated. Six strands of ¾-inch common manila rope are used. The rope, which is all one piece, runs noiselessly. The transmission plant was designed by T. S. Miller, of the Link Belt Machinery Company, Chicago. Iron sheaves are used.

In the bending-room are a set of rolls, a flue-welding machine and smiths' fires. The rolls, which were made by the Niles Tool Works, are claimed to be the heaviest in the country. The housings are massive; the upper roll is 24 inches in diameter and each of the two lower rolls measures 20 inches. The inside length of the rolls is 17 feet. An independent three-cylinder engine furnishes power. The flue-welding machine is intended to be used in welding short pieces of tube to the ends of tubes from which defective pieces have been cut, and does its work much better and more rapidly than it can be done by hand.

The riveting room is fitted up with a hydraulic riveting machine, built by Tweddell, of Gloucester, England. A tower, 52 feet high, extends above the riveter, in which boilers are raised and lowered vertically by hydraulic power, as well as moved laterally toward and from the machine, all operations being controlled by a workman standing on a platform by the side of the riveter. Rivets are heated in a furnace of original design, which will hold a keg at a time, heating them to a cherry red without danger of burning. The riveting machine exerts a pressure of 45 tons on the rivets and of 25 tons on the plates, forcing the latter together so closely that calking is practically superfluous. It is exceedingly interesting to watch a long boiler move vertically in front of this machine, which fastens rivets almost as rapidly as they can be put in place. A very slight pause is made after each one is flattened, sufficient to allow it to cool and retain its perfect set. The heads of boilers are riveted by hand, except when they are inserted reversed, in which case the flange is exposed and the hydraulic riveter can be used. In these works every hole in steel boilers is drilled, not punched. The substitution of steel for iron in boiler-making is demonstrated very forcibly by the fact that in these works 99 out of every 100 boilers are made of steel. Otis steel is used unless other makes are specified by the purchasers.

The flanging-room contains a heating furnace and a flanging machine. The heating furnace is a reverberatory furnace large enough to hold a 12-foot plate. A buggy is used to convey the hot plates to the flanging machine. This machine will flange plates ranging from 24 inches to 8 feet in diameter, and was built by Joseph B. Blettner, of Cincinnati. It is said to be the largest in the country. Flue holes are now flanged by hand, but a machine will shortly be in place for such work. A steam hammer is also to be added for forging irregular shapes. Among the new tools which have been ordered and will soon be set up in the works is an 18-foot plate planer being built by the Niles Tool Works.

The standard boiler made by Messrs. Mohr & Sons consists of two sheets only in the body. One sheet is used for the top and the other for the bottom, the lines of rivets running along the sides, so that no double thickness of plate is exposed to the fire. Very little work is done on boilers for stock, but nearly everything turned out is order work made under exact specifications. While a large part of their business is of local origin, the firm now enjoy a patronage extending from Pittsburgh to the Pacific coast, a great deal of boiler work now coming to Chicago from the far West which formerly went to other cities. Nearly $200,000 have been invested in this plant up to the present, and from 150 to 175 men are regularly employed, who work up an average of 3000 tons of plates yearly.

The Sioux City Corn Palace.

Unique among the usual autumnal celebrations, expositions, &c., is the Corn Palace at Sioux City, Iowa, opened on the 24th inst., and to be closed on the 6th of October. In the building of the first annual corn palace last year no definite plan was adopted, but the working out of the details of the building and the beauties of the decorations came with the discovery of the artistic possibilities of the corn plant. This year it is different. Profiting by past experience, competent architects were secured, who prepared carefully drawn plans of the framework of the structure, and, taking these plans as a guide, artists sketched and prepared outlines of the decorations. The building erected this year is 150 x 150 feet in size, and occupies every inch of a quarter block of ground. At the southwest corner or main entrance rises the main tower to a hight of 175 feet, while to the east and north are Norman towers, which support the Moorish pavilions. The roof of the main pavilion is shingled, thus insuring a dry interior. In the main tower there is a winding stairway, and from the top a view of the city can be obtained.

The great body of the outside is covered with ears of corn, sawed lengthwise through the center, and nailed with two brads with the flat or cob side next to the walls. To relieve the monotony, different colors are used, and white, red, speckled, purple and golden-yellow ears were obtained. The exterior is laid off into panels, which are plainly marked by the varied colors of the great Western product. Next to the ground is a wainscoting of corn stalks, stripped of their leaves and packed close together. The entrances, windows, &c., are also bordered with corn-stalks prepared in the same way. The railing of the towers is also covered with corn-stalks, and the long stalks of grain—wheat and oats—while the capstones of the turrets are represented by the bushy heads of millet, bearded oats and sorghum seed. The windows of all the towers are latticed with corn ears strung on wires. Some are purple, some are red, others yellow, and still others white, giving that variety of coloring which is at once the charm and novelty of the general effect. The interior of the palace is decorated with striking originality. It is lighted by electricity, and is fitted with appliances for fighting fire, and has a perfect system of sewerage. The palace is built by an incorporation known as the Sioux City Corn Palace Exposition Company, having an authorized capital of $250,000, the idea being to make the institution a permanent one. Over 50,000 bushels of corn and grain were used in its construction.

Industries of Knoxville, Tenn.

Knoxville, Tenn., does not boast of a boom, but its industrial progress is quite satisfactory to the inhabitants. The city is situated in the midst of a great agricultural country, and being near large areas of the finest timber and coal deposits it seems destined to become a very important inland city. The population has grown from 12,000 in 1880 to over 40,000 by actual count. It has few great manufactures to boast of, yet possesses ample water-power in the bold streams near by, particularly the Tennessee River. The city needs a few more railroads. Some are being built and others located. The East Tennessee, Virginia and Georgia have their construction and repair shops and general offices in Knoxville. This road is doing a heavy business, taxing the rolling stock to its limit, and necessitating heavier steel rails to be laid on part of the track. In their shops the company have built several locomotives complete, which are doing service regularly and are among the finest on the line.

The wholesale hardware trade of Knoxville is very large and important, carried on principally by George Brown, Woodward & Co., C. M. McClung & Co. and S. B. Luttrell & Co., and reaches into Virginia, the Carolinas, Georgia, Florida, Alabama and Mississippi. The marble quarries near the city are being rapidly developed, and are likely to acquire a national reputation, as the quality is excellent and the varieties of colored marble are numerous. The Knoxville Iron Company, of which Jas. R. Ogden is president and A. O. Brown is superintendent, is a well-equipped rolling mill. Mr. R. L. Ralston, of Eastern Pennsylvania, is general manager, and has instituted several improvements. The capacity of the mill is about 35 tons of finished iron per day, and they are now behind in their orders. The product is merchant bar, fish and angle plates and mine rails. The company have just had put in two Smith gas generators by Laughlin & Co., of Cleveland, which have proved successful. They are also trying the experiment of a gas generator under the boilers, the originator claiming economy of fuel and regularity in heat. Mr. Ralston uses the best grades of Virginia and Southern pig, and uses a local ore to counteract the cold short tendencies of the latter irons. The markets for their mill product are principally in the South and the States above referred to.

The programme which has just been issued for the ninth annual convention of the American Society of Mechanical Engineers to be held at Scranton, Pa., beginning on October 15, promises an enjoyable and a profitable meeting. A number of delightful excursions have been provided for and the list of papers and topical queries, as usual, is excellent.

The Iron Age

New York, Thursday, September 27, 1888.

DAVID WILLIAMS, - - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, JR., - EDITOR.
GEO. W. COPE, - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - HARDWARE EDITOR.
JOHN S. KING, - - - - BUSINESS MANAGER.

The Business Outlook.

The improvement in the volume of business during the past two months in the many departments of the iron trade, notably in the West, has given much encouragement. For the first time in a considerable period speculation has played a part in shaping events, although thus far in a moderate degree only. Still, it has led to exaggeration and a distinct effort through the press and other channels to create the impression that a notable rise in values is to come, possibly this fall, and surely next year. It would be idle to deny that such a feeling does not exist outside of purely speculative circles. We have noticed it cropping up repeatedly among manufacturers and merchants both in the East and West. We know of cases in which owners of plants have entered into extensive contracts for improvements and enlargements, with the avowed purpose of being ready to take advantage of the rising tide. In other instances plans have been matured with a similar object in view, though their execution is held in abeyance contingent upon the happenings of the next two months. The basis of convictions leading to such preparations is the broad fact that with a growing population, and after years of retrenching, we are developing a consumptive demand of enormous proportions. Spasmodically the evidences of it have come during the past two years. It needs only one great general impulse, like good crops and fair prices for agricultural products, to cause first a rapid replenishing of stocks in the hands of middlemen, and then the scramble for increased quantities of goods, to cause a sudden rise. There are many who reason that the conditions are favorable to such a movement, and some who have already begun to set their face against any rush which may prove disastrous to legitimate interests in the long run.

As yet this feeling that we are on the eve of a "boom" is vague, but it is shared by many and is being acted on by some. From time to time some unfavorable development shakes the faith of those who are sanguine, but it is noticed that its influence is short-lived, while favorable events make a deeper and more lasting impression and make new converts while strengthening the faith of the more hopeful. It is conceded on all hands that the volume of business is unprecedented. Crops have been bountiful and promise to bring better prices than have been secured for years. The enormous coal tonnage indicates great activity in manufacturing added to increased consumption for domestic purposes. The shipments of Lake ores are heavier than was thought possible in the spring. Freight rates, while demoralized in some very important sections, show some tendency toward improvement, and with the enormous traffic handled may soon react in response to further additions to it. With a little more money in the treasury this would bring heavy purchases for new equipment and much needed renewal. In our iron and steel works, our foundries and machine shops, our mines and manufactories, we have gradually but steadily been creeping up to capacity. There is still much margin for increased output by urgent crowding, but as that point is reached the indifference of the seller grows and the raising of prices comes naturally.

Let it be conceded that enormous amounts of money were directed into permanent investment by the phenomenal railroad building of last year. It must be acknowledged that as yet the additions to mileage have been more a burden than a source of revenue to the great lines who undertook them. Yet money is plentiful in all our financial centers and there are many meritorious undertakings awaiting the time when capital will be forced to look for employment at better terms than are now generally offered. It is not to be expected that enterprise will seek new channels of activity while the minds of the majority of our citizens are largely occupied with political responsibilities, while many captains of industry earnestly and honestly believe that the outcome of the struggle now being waged almost exclusively over economical questions must seriously affect our industrial prosperity if it is adverse to their political beliefs. We may suffer serious drawbacks after that contest is decided, but even with all such contingencies to check or to reverse the incipient movement, the outlook is decidedly hopeful. The developments of the early winter must determine whether 1889 is to be a year of exceptional prosperity or not. This question, which is now agitating the minds of a few, may soon become the all-absorbing subject of thought and find more general expression in active preparation.

The pressure of heavy traffic upon the Western railroads which was predicted for the fall months is now being felt. Already such a scarcity of cars has developed that complaints are numerous among shippers. The railroads centering at Chicago are nearly all suffering on this account, and could greatly increase their business if they could get the necessary rolling stock. The railroad companies largely interested in distributing coal are doubly hampered, being pushed by the great demand for coal at this season of the year and urged to supply increased facilities for the transportation of grain to market. Eastern connections of the Western roads are being drawn upon for all the cars that can be spared for this increase in traffic, but the relief derived from that source will only be temporary, as the Eastern roads will probably soon need all their cars themselves. Many Western railroad managers foresaw this condition of railroad business several weeks since, and earnestly advised the people living along their lines to lay in their supply of coal early, as the pressure upon the facilities of the roads promised to be something enormous when the crops began to be moved. This condition of the railroads promises to be of considerable benefit to the iron trade. Large orders are pending for new cars, requiring considerable quantities of iron and steel, and others will follow as rapidly as the railroad companies find that they must increase their equipment. The expansion of railroad business will probably be of sufficient duration to also enable the companies to accumulate a fund toward the purchase of rails for renewals, now badly needed on many lines, even on some of the most important Western roads.

Our Imports of Iron and Steel.

From England and the Continent come steadily better reports of the improving condition of the iron, steel and allied trades. Americans who have returned from abroad, men who possess exceptional facilities for correctly gauging the feeling prevailing, report that the activity in the leading industrial centers is very great, indeed, and that the advancing tendency in prices is gaining. Nearly a year since *The Iron Age* pointed out that a higher level of values could only be attained after the demand from other markets had more than compensated for the falling off in shipments to this country. With the aid of English export statistics we showed months ago that that point had been reached. The latest returns emphasize this. While generally speaking the English exports show an improvement only in some lines, the shipments to other countries outside of the United States have increased. Thus we have for the first eight months:

English Exports of Iron and Steel, Eight Months, Gross Tons.

	1886.	1887.	1888.
Pig Iron:			
Total	688,532	955,922	711,358
United States	220,251	286,736	100,235
Other countries	468,281	469,186	611,123
Bar, Angle, Bolt Iron:			
Total	153,013	165,418	195,562
United States	2,284	1,869	3,274
Other countries	150,729	163,549	192,288
Railroad Iron, all sorts:			
Total	502,250	642,543	703,978
United States	21,746	112,831	39,882
Other countries	480,504	529,712	664,096
Steel Rails (included in above):			
Total	334,350	483,998	482,523
United States	21,114	110,289	38,321
Other countries	313,236	373,709	444,202
Wire:			
Total	26,892	27,748	42,961
United States	2,957	2,594	1,810
Other countries	23,935	25,154	41,151
Hoops, Plates and Sheets:			
Total	198,608	220,327	270,447
United States	13,758	21,081	28,092
Other countries	184,850	199,246	242,355
Tin Plates:			
Total	232,738	235,901	263,562
United States	186,460	179,296	196,388
Other countries	46,278	56,605	67,174
Old Iron and Steel:			
Total	94,299	205,010	100,491
United States	33,944	147,662	16,190
Other countries	60,355	57,348	84,301
Unwrought Steel:			
Total	73,641	214,708	100,372
United States	35,895	170,224	45,803
Other countries	37,746	44,484	54,569

With the exception of hoops, plates and sheets, and of tin plates, the figures of exports to the United States show a marked reduction. Nor is this confined to our imports from Great Britain, as the following import statistics of our Bureau of Statistics for the first seven months, in gross tons, clearly show:

American Imports of Iron and Steel.

	1888.	1887.
Iron ore	382,240	684,592
Pig iron	112,989	280,898
Scrap iron	31,267	219,736

Scrap steel	6,372	20,726
Bar iron	14,572	20,373
Rails	49,128	53,055
Cotton ties	7,811	6,695
Steel hoops, sheets and plates	13,244	15,437
Steel blooms, slabs, billets and bars	66,104	210,581
Sheet, plate and taggers iron	3,265	3,063
Tin plates	173,537	168,359
Wire rods	67,821	98,523
Wire and wire rope	1,969	1,449
Anvils, axles and forgings	849	861
Chains	491	442

The English figures quoted above are particularly interesting, however, as proving that, deducting the quantities sent to this country, the balance, which represents the English exports to the rest of the world, shows a notable betterment in the demand. While in some lines this has not yet compensated English iron-makers for our lessened purchases, it does prove that their position as sellers has grown more favorable This has already found expression in higher prices and in a revival of speculation for an advance. To us the importance of this fact lies in the circumstance that it raises the limit which we may reach in values before inviting heavily increased shipments. Should a rapid expansion in the demand here ultimately cause heavier buying abroad, then its addition to a good business with other countries would accelerate an already rising tendency. This is an additional circumstance which would place an upward rush here within the range of possibilities. It is a point which should be carefully considered by buyers and sellers alike if the swelling demand in this country should in the next quarter assume proportions which a few anticipate and many do not consider impossible.

Chicago and St. Paul Freight Rates.

The matter of the Chicago, St. Paul and Kansas City Railway, just decided by the Interstate Commerce Commission, has some interesting features. This railroad asked for a ruling permitting it to make higher rates to intermediate points between Chicago and St. Paul or Minneapolis than is charged upon through traffic to and from the same points. This was asked upon the ground that a rival line was quoting these low through rates, though not earning operating expenses, and that the road in question should be allowed to compete for this through business without lowering local charges to the same level, or else the C., B. and N. should be compelled to advance their supposed ruinously cheap tariffs. Neither of these points was acquiesced in by the commission. The Interstate act was passed, they say, for the protection of the public and not to help one road against another, it being supposed that the carriers would arrange their own tariff matters and protect themselves.

In our way of looking at the case, the defending railroad did not make the best possible case of its low through and locally higher rates, and perhaps the omission was partly intentional. The reason of the low rates on the C., B. and N., which caused all the trouble, is given by the traffic manager or that road as "owing to the extremely low rates prevailing by Lake Superior lines." This seems to be almost the only mention of water competition made at the hearing, and yet it is the most potent cause of the whole trouble. If the traffic concerned only the cities of St. Paul and Chicago the matter would be simple enough, but the seaboard cities and the chain of waterways must be taken into account. Minneapolis flour and grain, destined for the East or for export, will pay no more via Chicago than via Duluth or Sault Ste. Marie, and the railroads between Minneapolis and Chicago cannot, therefore, maintain for any length of time any rate much higher than the rate to Lake Superior. In the same way, the rate on return shipments from the manufactories must be correspondingly low. When the through rate from New York to St. Paul, via rail to Buffalo and lake to Duluth, is on first class but 50 cents (not including insurance), and the rate from New York to Chicago is 35 cents, it seems plain that on traffic from the East for the Northwest the C., B. and N., or any other road, cannot get 60 cents, no matter whether anything less would be a losing rate or not. The true defense, therefore, it seems to us, would have been just such competition between rail and water carriers as the Interstate Commission had already decided constituted the differing circumstances allowing differing rates. It is, of course, true that all the traffic passing north from Chicago does not originate east of that great city, and it would be interesting, for many reasons, could we know what proportion of this business is actually made up there, excluding such goods as have been sent to Chicago from New England or Pennsylvania and reshipped by jobbers or from warehouses. No doubt such reshipments constitute a very important part of the total traffic. But even of the goods manufactured in the great works of that city it can be said that they must be sold in the Northwest in competition with goods made further East, but which have had the advantage of this cheap lake carrying. So, from whichever point of view we look at the problem, the importance of the waterway is seen.

Another point in the matter is that an evident way of escape was not even mentioned and that is the making of a through rate between New York, or Boston, or Pittsburgh and the Northwest, a rate which could be less than the rate to Chicago plus the rate from Chicago to St. Paul. This would have enabled the Chicago, St. Paul and Kansas City to have collected a low rate on competitive water traffic, while charging on the business originating at Chicago a higher rate. No suggestion of such a plan was heard from the lips of any of the railroad men. This fact speaks volumes for the strength of Chicago's influence and for the alertness and enterprise of her business men. A moment's thought will show the severity of the blow such a plan would strike against her jobbing trade. As the case now stands Chicago is a basic point for rates. Tariffs are so constructed that everything manufactured in Pennsylvania or elsewhere can be shipped to Chicago, resold, and shipped to points further West without any additional charges for the break at Chicago. If now it be once admitted that this rule must on any account be broken and the rate from New York to St. Paul be lower than the rates charged to Chicago and out again, then the wholesalers of that city lose control of so much trade. As remarked before, it is most significant that railroad managers will appeal to Washington on purely technical grounds for permission to charge the small towns a high rate, but will not one of them whisper that exactly this thing can be done if only they will charge Chicago shippers as high as the local dealers, and higher than manufacturers further East. It may yet happen that these Chicago-St. Paul railroads will be forced to recognize the facts of the water competition by the lakes and meet the through competition between the seaboard and St. Paul by a through route, but this will not be done at present. The influence of Chicago is too firmly established. It was a knowledge of this fact which caused the building of the Soo line as "an anchor to windward" by the Minneapolis millers.

Our Trade With Japan.

Our domestic export to Japan has increased so much recently under the impulse of growing prosperity in that country, that an examination of the financial reforms and industrial expansion going on there may be useful. One of the greatest drawbacks with which Japan had to contend was the paper money; in 1885 specie payment was resumed after the paper money had depreciated 45 per cent. of par. Confidence was restored, and the Government finances since then took an even course. During the nine months that followed resumption, fiscal year 1885–86, the income was $56,622,173, and the outlay $56,620,275; in 1886–87 the respective figures were $74,695,415 and $74,689,014, while the budget estimate for 1887–88 fixes the revenue at $79,936,870, and the expenditure at $79,935,553. The national indebtedness is large, amounting on July 1, 1887 to $249,108,578, but with the exception of $7,522,032 it is internal, and the Nakasendo Government railroad represents $20,000,000 of it. In the budget the army figures with $12,045,994 expenses, and the navy with $12,006,052. In order to maintain her independence against China, Japan has an army whose effective strength, rank and file, is 54,388 men, and a navy ready for operations of 221 steamers, with a joint tonnage of 40,090 and 50,979 horse-power, one of them being an armored vessel. As per census of January 1, 1886, the native population at that time was 38,151,217, the area being 382,418 sq. km., and there were 7117 foreigners, 4143 being Chinese, 1423 Englishmen, 592 Americans, 343 Germans, 198 Frenchmen, and 418 of other nationalities.

Greater progress would have been made in railroad building if foreigners had been allowed to engage in it direct; for this very reason a speedy revision of the treaties with foreign nations is much to be desired. Up to last year the Government alone built the railroads, and 370 miles went into operation, a start having been made in 1868. In 1887 there were 151 miles added, 11 domestic companies being formed, with a joint capital of $32,000,000. The first lines which the Government built cost $50,000 per mile, but the present cost of construction is only $18,000. The Japanese Railroad Company paid in 1887 a 10¼ per cent. dividend, the operating expenses averaging 45 per cent. of the gross earnings. In 1885 the Government negotiated an 8 per cent. railroad loan, the one above alluded to, which was

quickly taken up. Japanese engineers made the surveys, and all of the employees are natives, yet mistakes and accidents are of rare occurence.

Marine stations for the navy are multiplying. At Kure, a few miles distant from Hiroshima, an extensive station is being constructed in connection with a lagoon, and the dock frontage is to be 1½ miles; a smaller station is in course of construction on the west coast of Kinshin, in the vicinity of Nagasaki, while the island of Tsu-Shima, in the Straits of Corea, is being strongly fortified. The large cities are fast being provided with water-works, and Yokohama has a new aqueduct, which was finished in October last. Harbor and river improvements are being actively pursued at a number of points.

Some 20 years since Japan could not boast of the existence of any native mercantile or industrial companies, the feudal system preventing their formation till then. Last year, in three cities alone—Tokio, Osaka and Kioto—no less than 111 companies were formed, with a joint capital of $21,500,000, while 13 banks increased their capital by $18,000,000. Adding thereto the $32,000,000 of the 11 new railroad companies, it appears that $71,500,000 in shares were subscribed for among the people in a single year, or about $2 per capita. The new companies alluded to built new factories, &c., chiefly for cotton and paper mills, dyeing establishments, glass factories, wood-working shops, works for the preparation of tea and silk for export, express companies, machine shops, truck farming, horticultural and fishery enterprises, china, lacquer-ware and bronze goods factories, brickyards, ice houses, manufacture of artificial manures, all leading to new enterprises. On December 31, 1886, there were in operation 22 cotton mills, containing in all 76,000 spindles, turning out 1,320,000 pounds of twist. In 1887 their number was increased by eight large mills, with 117,000 spindles. The Japanese cotton crop yielded last year 7676 tons, but this year the crop will be more bountiful, the Government having stimulated cotton culture by advancing money to small farmers. Till now Japan had to import cotton to a notable extent. It is hoped that soon there will be no necessity for it nor for importing twist from Bombay and cotton goods from Manchester. A brewery is to be built at Tokio, the share capital being $150,000; the capital of the Tokio Electric Light Company is to be increased $500,000 in a couple of months, and that of the Cattle Breeding Company $300,000. Japanese workmen are skillful and wages low.

In 1887 the foreign trade of Japan reached a total of $95,000,000, being an expansion of 86 per cent. within a decade, for in 1877 it did not exceed $51,000,000. The total trade between Japan and the United States amounted during the nine fiscal years 1870 to 1878 together to $84,059,000; during the last nine fiscal years, 1879 to 1887, it reached a total of $147,827,000, an increase of about 75 per cent. During the calendar year 1887 the American trade exhibited the figures below as compared with 1886.

	Import.	Dom. exp. to Japan.
1887	$17,742,288	$4,150,777
1886	17,072,288	2,774,622
Increase in exports to Japan		1,376,155

In the fiscal year 1887 we shipped to Japan 21,983,462 gallons of refined petroleum, and received thence 2,312,179 pounds of crude camphor, 15,993,843 pounds of rags, 2,165,329 pounds of raw silk and 39,269,448 pounds of tea. Silk production increases rapidly in Japan, and so does the manufacture of silk goods. In a couple of years, when the new railroads are in operation and tap the most fertile tea districts, together with those where mulberry trees and silk worms flourish best, Japanese progress will not unlikely become still more astonishing. With growing prosperity the Japanese will take American goods more freely, the more so as we take nearly all her tea, and year after year more silk. This is all the more gratifying since the initiative of the American nation threw Japan open to international intercourse and civilization.

OBITUARY.

J. G. BRILL.

John George Brill, president of the J. G. Brill Company, and founder of the Philadelphia Car Works, died on Saturday morning at his home in Philadelphia, after an illness of more than six months. Mr. Brill established himself with his son, T. Martin Brill, in a small way, in the business of car supplies on Chestnut street, and later on, as their means increased, gradually drifted into the building of tram cars, and afterward into the manufacture of all classes of railway cars. In 1872 they obtained the first large order of railway cars that came to this country from Mexico, and since that time have made the greater portion of all the cars ordered from that country. The demand for their cars came not only from all parts of this country, but also from Europe, Asia, Australia and Central and South America. At present 40 per cent. of orders received are for foreign account. Mr. Brill introduced many novelties in the manufacture of cars, and was a thorough and conscientious mechanic. He was prouder and more ambitious regarding the good quality of work than money getting. He considered his greatest triumph the obtaining of the highest award, a gold medal, for the best tram car at the Exposition of Railway Appliances, in Chicago, in 1883. Mr. Brill was born near Cassel, Germany, in 1817.

WILLIAM MILLER.

William Miller, one of the oldest and best known iron manufacturers in the West, and chairman of the Miller Forge Company, Limited, of Pittsburgh, died on Friday evening, the 21st inst., at his home in Allegheny City, Pa. He had been suffering from typhoid malaria for nearly three months.

William Miller was born at Duntochar, near Glasgow, July 21, 1820, and came to America in 1849, connecting himself with the West Point Foundry, at Cold Spring, on the Hudson River. In 1855 he returned to Scotland, with some intention of again permanently locating. At this time he was employed in the works of the Dennys, near Dumbarton, where the famous Clyde steamers were built. He returned to America in 1858, and, passing through Pittsburgh on a trip West, was suddenly led to a determination to settle there with J. P. Haigh, in the West Point Forge, on Water street. This was afterward merged into the Duquesne Forge, on First street and Duquesne way, in 1860, where Mr. Miller became sole proprietor in 1864. During the war some of the most important forgings used by the Government were made here. In 1882 the business was still further enlarged and a new building put up at Rankin station, on the B. and O. R. R., under the name of the Miller Forge Company. He leaves a widow and six children, four daughters and two sons, William I. Miller, vice-president of Glenwood National Bank, at Glenwood Springs, Col., and Humphries Miller, secretary and treasurer of the Miller Forge Company.

WILLIAM BAROGWANATH,

a prominent boiler manufacturer of Chicago, died on the 20th inst., aged about 70 years. He was the senior member of the firm of William Barogwanath & Son, well known throughout the Northwest.

CORRESPONDENCE.

The Life of Iron Roofs.

MARSHALLTOWN, DEL., September 17, 1888.

To the Editor.—Since the article, "The Life of Iron Roofs," appeared in *The Iron Age* I have received numerous inquiries for further particulars concerning the roofs alluded to. If it will interest your readers please say the sheathing used was made of stock boards laid as closely as possible. The under side of the metal had two good coats of paint, but was not otherwise protected, and, as far as I can observe, has not rusted. The gauge of iron used was No. 26. The cleats on the standing seams are not exposed. Mr. Caleb Marshall, who owned this property from 1837 to 1861, informs me that I made an error in my statement on August 16, in that the barn roof was put on in 1840, and not in 1846. I have about 75,000 square feet of iron roofing, which, after many years of service, has been very satisfactory.

Yours respectfully,
J. R. BRINGHURST.

The Alaska Commercial Company.—The operations of the Alaska Commercial Company receive further attention from Chester Seeber, of San Francisco, formerly United States Commissioner for Alaska, who has written a letter for the purpose of showing that the company uses the power acquired under its contract "to monopolize the whole trade of western Alaska, oppress the inhabitants and to retard the development of the country." Mr. Seeber says the geographical conditions of western Alaska render the country impenetrable, except by navigation of its vast rivers, which flow westward into Behring Sea. All the commerce of the country flows through this sea and past the seal islands of St. Paul and St. George, which are held by the Alaska Commercial Company. Revenue steamers, he says, are kept at the expense of the Government throughout the summer months, constantly in attendance about the seal islands, and any unfortunate vessel discovered in Behring Sea is searched and if found to contain any furs, no matter where or how obtained, is seized and subjected to condemnation and sale. This arbitrary action, he says, on the part of the Government practiced at the solicitation and by the procurement of the Alaska Company, renders any attempt, however lawful, of any individual to do any trading with the country perilous and in most cases results in irreparable loss. Mr. Seeber endeavors to show that the company have substantial reasons for wishing to maintain its primeval domains undisturbed.

The search for the treasure ship sunk long ago off the Delaware breakwater has been abandoned. The only trace of metal discovered was verdigris from supposed contact with copper sheathing or a gun.

Washington News.

(From Our Regular Correspondent.)

WASHINGTON, D. C., September 25, 1888.

The Sub-Committee on Finance at last submitted their tariff bill to the full committee to-day. Owing to some undetermined points as to the amount of reduction on certain articles the committee determined to withhold their schedules from publication until they could have a further consultation and also to enable them to perform the courtesy of submitting their bill to Senator Beck, who is in poor health at Fortress Monroe. A full copy of the bill was prepared and placed in a sealed packet and intrusted to a deputy sergeant-at-arms to be conveyed to Senator Beck. It is expected that the acknowledgment of the Senator will be received by Thursday, at which time the committee will have another meeting.

The aggregate results of the differing views of the majority are as follows:

Total repeal of tobacco tax.	$30,000,000
Repeal on manufactured tobacco	25,000,000
Total repeal of duty on sugar	56,000,000
Fifty per cent. reduction	28,000,000
Repeal of tax on fruit brandy	1,500,000
Repeal on alcohol used in the arts	6,000,000
Reduction of duty on manufactures caused by equalizations and readjustment	10,000,000

There is also a cut of 50 per cent. on rice, which would add, approximately, $8,000,000.

The maximum reduction proposed is: Repeal of internal taxes, $83,000,000. The minimum reduction proposed is $70,000,000.

It is the reconciliation of these differing views which may consume some days. The general disposition, however, is to permit certain features, such as the amount of reduction on sugar and rice, if any, and tobacco to be determined in open Senate.

Owing to the continued indisposition of Senator Beck, Senator Harris has been selected to prepare the minority report. He informed the committee that it would require several weeks for him to complete the task. There is a very general disposition on the part of the Democrats to enter into a full discussion of the Senate bill, in contrast with the Mills bill. The metal schedule has been prepared in conformity with the views of representative men in the different branches. The reductions are stated by members of the committee as not being material in any case. The unification of iron and steel duties as far as practicable is said to be the most important change, and is claimed not to result in much of a reduction.

The duty on tin plate remains at its present rate of 1 cent a pound. The committee were favorable to the increase required to place that article on a protective basis, but could not see their way clear to such a step when public sentiment has not yet recorded itself on the opposite positions held by the two great parties now marshaling for control of the administration of the Government for the next quadrennial period. Lumber remains at present rates and wool is unchanged, except an increase of 1 cent on the finer grades. Mr. Cramp has had a conference with Chief Constructor Wilson, in which he stated that owing to the floods it was impracticable to extend the ways so as to increase the precautionary measures taken to insure a safe launching of the cruiser Baltimore, next Saturday.

The recent rapid advance in the price of old iron rails, coupled with the cheapness of new steel rails, would seem to present a very favorable opportunity to railroad companies for renewing their tracks. Some of them have taken advantage of this condition of affairs, but the business thus created has by no means assumed the proportions naturally to be expected. In the case of Western railroad companies the reason assigned for their non-action is their inability to raise the necessary cash to purchase new steel rails as a preliminary step toward taking up old iron rails. Here is an opportunity for the intervention of financiers who will advance the purchase-money for new rails and take in payment the old rails and a cash difference to be agreed upon. We are informed that Chicago parties are ready to make such an arrangement with railroad companies of good repute, and there are probably other agencies which would be willing to handle business of this character if application was made to them. The steel-rail manufacturers are anxious for orders, but they cannot afford to engage in financial operations of this sort to a great extent. They would be obliged to search for buyers of old iron rails and would probably be at a disadvantage in this respect when competing with those who make a specialty of the old-rail business. The suggestion herein conveyed may be of benefit to both manufacturers and consumers of steel rails.

Bells in History.

Bells have a large place in history, almost larger than any other object that could be mentioned unless we must except some of the implements of destruction. Their great antiquity, says *Lock and Bell*, is beyond question. An explorer among the ruins of Ninevah, or some other of those vanished Oriental cities, claims the discovery of a bronze bell, and the citizens of Rome came together in their public places at the signal of bells. But the Roman bells were elongated pieces of forging about as musical, it is to be presumed, as a modern cow bell. It was not until mediæval and modern times that the bell ringer became a man of very distinguished duties. Who has not heard of the Sicilian Vesper bells, rung in the year 1282 as a signal for the death of 8000 Frenchmen, slaughtered so that Sicily might be free? Who has not heard again, and shuddered as he listened, of the bells of St. Bartholomew, the signal, it is said, for the death of 100,000 persons? And the 8 o'clock curfew bell that rang through all England at the bidding of William the Conqueror, as a warning to his newly-made slaves to "douse the glim;" has it not echoed in faint and still fainter tones through all the pages of English history down to date? But it has not been the fate of all bells to be made to give the signal for slaughter or oppression. The Philadelphians have their fondly cherished Liberty bell. It is held in such esteem that it was borne half over the continent a few years ago under the escort of a guard of honor to protect it from all injury. It proclaimed once from its brazen lips the birth of a new nation, and hence if it be not made to endure as long as the nation itself it will be because metal is more perishable than the work of the Revolutionary architects.

Curious Guns.—Among the many things to be seen at the United States Museum, at Washington, are two guns which exhibit the most elaborate workmanship. They were presented to Thomas Jefferson, not by the Ahkoond of Swat (he is dead, poor fellow), but by the Emperor of Morocco. The first is a flint-lock musket, 77 inches long, smooth bore; the barrel is of steel, and for half its length is octagon; the remainder is round. The stock is of oak inlaid with arabesque design in gold covering the woodwork. Six bands of gold hold the stock and barrel in place. The flint-lock is of a peculiar pattern, heavily inlaid with gold, also of arabesque pattern. There is no trigger guard. On the butt there is a solid gold plate. The ramrod is ebonized, headed with a gold plate a foot long, altogether a costly and magnificent piece. No. 2 is a Moorish flint-lock musket, smooth bore, steel barrel, in shape octagon the entire length. The whole gun is 5 feet 8 inches long. The barrel and stock are connected with three silver bands. On each side of the stock are double rows of pear-shaped coral ornaments inlaid in solid silver bands. There is a solid gold plate on the butt, which is inlaid with a thick silver plate. The ramrod is coral ornamented with silver. This gun is also a present from the Emperor of Morocco to President Jefferson.

A Capillary-Steam Boiler.

At a recent meeting of the French Society of Civil Engineers, in Paris, M. Serpollet described his new tubular boiler, for which he claims that it cannot possibly explode. The boiler consists simply of a solid-drawn steel tube, which has, with the exception of its two ends, been rolled out flat, so as to leave in it a channel only 0.1 to 0.3 mm. wide. The tube is then coiled spirally, and its inner end is bent up vertically to receive the steam pipe, while the feed-pipe is screwed into the outer end of the spiral. This spiral tube boiler is placed into a furnace, which may be of the slow combustion type, and there is no need for either stop valve, blow-off cocks, gauge glass or safety valve. The feed water, upon entering the capillary channel within the tube, is instantly converted into steam, and issues perfectly dry. The tube of a 1 horse-power boiler is 6 feet 6 inches long, and when flattened out 4 inches wide; its total heating surface is about 5 square feet, and it is said to evaporate 45 pounds of water per hour, with a consumption of 9 pounds of coal. The supply of steam to the engine is regulated by regulating the amount of feed water sent into the boiler, and for this purpose the inventor arranges the regulator of the engine either to act upon the waste cock of the feed pump or upon a sliding block, by which the stroke of the feed pump is altered. There being practically no water in the boiler, the regulation is said to be as precise and quick as with the usual types of engines. To stop the engine it is only necessary to close the cock on the suction-pipe of the pump, or open the waste cock fully. A few days after M. Serpollet had brought this boiler before the Société des Ingénieurs Civils, he showed the application of it to a steam driven tricycle in the streets of Paris. The boiler was carried behind the axle of the main driving wheels, and the engine was fixed under the rider's seat, which also contains a supply of water and fuel. A speed of 6½ miles an hour was attained over roads having 1.5 per cent. grades. The weight of the tricycle in service, but without the rider, is 3¾ cwt.

The plant now employed on the Manchester ship canal includes 98 locomotives, 3221 wagons, 51 steam navvies, 49 steam cranes, and 104 pumping and other engines, with 161 horses and 8568 men and boys. Almost the whole of the land required for the construction of the canal has now been acquired by the company.

An interesting experiment has been made at Toulon, with the object of demonstrating the utility of a captive balloon in observing from a considerable hight the movements of an enemy's fleet. A naval officer seated in the car of a balloon was in telephonic communication with the frigate Indomptable, to the commander of which he signalled, as if in actual warfare, all that he could observe from his elevated position.

Wages at the Edgar Thomson Works.

The Pittsburgh newspapers report the wages earned by the men at the Edgar Thomson steel works of Carnegie Brothers & Co., at Braddock, Pa., for the month of August, on the sliding scale based on a selling price in that month of $31.50. Good machinists now make on an average of $82 per month, or about $2.90 per day. No machinist makes less than $2.50 in 10 hours. For night work they get time-and-half-time, and for Sunday work they are paid double. Machinists' wages, and those of the blacksmiths are the same as they were last year. The latter make $70 a month, or about $2.50 per day. Blacksmiths' helpers' wages range from $1.50 to $1.60 per day of 10 hours.

The converting millmen were even surprised themselves in receiving the amount of money they did for the month of August. It is true that a great many of them work 12 hours, but the amount of money they received in excess of that for any month of 1887 had a tendency to make them feel just so much better on pay day, and they were wholly satisfied. All over the converting mill, from the troughman to the scrappers, the wages are in advance of those of 1887. The latter work 12 hours, and were paid for August $1.62 per 100 tons. In 1887 they got $1.90 per 100 tons. The quantity of steel that can be turned out in 12 hours is so much in excess of that turned out in eight-hour turns that their wages for last month were much bigger than for any month in 1887 before the sliding scale went into effect. Scrappers' wages for the month of August were $212.37, or $8.13 per day.

The foremen of the cupolas were paid $1.40 per 100 tons. They made $184.14 in August, or an average of $7.87 per day. Their helpers are paid $2 per day. The exact earnings of vessel foremen could not be obtained, but their wages are not less than $100 per month. The troughmen got 92 cents per 100 tons, and made $121.20, or an average day's pay of $4.27. The ingot pourers worked eight hours at $1.40 per 100, and made $122.76, an average of $4.25 per day. The pull-arounds were paid $1.10 per 100 tons, worked eight hours and made $96.14, or very nearly $4 per turn. Steel blowers got $1.14 per 100, and made $99.63, or an average day's pay of about the same as the pull-arounds. The pulpit boys got 82 cents per 100 tons. They work 12 hours. Last month their net earnings were $71.66 each, or about $2.80 per day. The bottom-makers in the converting mill made an average day's wages of $5.50 in 12 hours. Their helpers are paid by the day, and receive only ordinary laborers' wages.

The employees of the blooming department made better wages than in any previous month since the erection of the works. Of course they all work 12 hours. The foreman and salaried men's wages are known only to themselves and the firm. The first helpers received $1.39 per 100. They made $157.66, or over $6 per turn. The second helper got $1.02 per 100, and made $126.94, or about $5 a day. The lever boys in this department made $40.25. The men who worked about the shearers got 91 cents per 100. Their month's pay amounted to $103.22, a fraction less than $4 per day. The chippers at the hammer were paid the same as the second helpers in the blooming mill, and the helpers at the hammer received the same as the shearmen. The rollers in the blooming mill are salaried men, and only work eight hours. The table men get $1.13 per 100. Their month's pay footed up $128.17—about $5 per day. In the rail mill there is no distinction made, except with the rail straighteners and gaggers, who work eight hours. All the rest work 12. The amount they get per ton is something less than what they received during 1887; but, by working 12 hours, they were all able to make wages that even excelled those of any month during the year of 1887. The rail mill heaters last month were paid $1.48, and made $153, almost $6 per day. The buggy boys are paid $2 per day. The lever men at the roughing rolls got $2.40 per day; the lever men at the short rolls, $3.50, and the guide setter at the finishing rolls, $3 per day; first helper on hot bed, $2.40; hot bed, second helper, $2. The rail straighteners worked eight hours and got $1.58 per 100 tons, and made, for the month, $113.76, or over $5 per day. Gaggers also work eight hours. Per 100 tons they got 90 cents, and made $64 80, or about $2.50 per turn. Chippers got $2.50 for a day of 12 hours; drillers, $2.50. These men's wages, as well as those for the chippers, are gauged by the rise and fall of the market. Rail loaders got 65 cents per 100, and their net earnings for the month were $100. The cold sawyers got $1.50 per day of 12 hours' work, and the water tenders $2.70 for the same number of hours per day. Engineers' wages range from $1.60 to $1.80 per day, and brakemen's from $1.25 to $1.40.

At the furnaces the only change is that the men work longer hours and make more money. The keepers, whose earnings in 1887 rated at $2.40 per day, last month made, on an average, $2.90. The engineers make $2.53 in 12 hours this year, as against $2.90 in 12 honrs last year. The fillers' wages last month averaged $1.85 per day, as against $1.55 per day, working on eight-hour turns, last year. Keepers' helpers, $2.32; last year, $1.97. The stock-yard laborers receive $1.58 per day, against $1.40 per eight-hour turns last year.

Recent Legal Decisions.

CONSPIRACY TO "BOYCOTT" MANUFACTURER.

P. P. Sherry made shoes, and a difficulty arose between him and a portion of his workmen. These workmen, through the president and secretary of their trade union —the Lasters' Protective Union - caused a banner to be made and to be carried in front of Sherry's factory, upon which was this inscription: "Lasters are requested to keep away from P. P. Sherry's until the present trouble is settled. Per order L. P. U." Sherry filed a bill for an injunction against the president and secretary of the union to restrain such use of the banner, on the ground that its use was part of a scheme to intimidate persons from continuing or entering his employment, which scheme was devised to injure his business. The trial court found that there was a scheme and that the use of the banner was a part of it, and the case—Sherry *vs.* Perkins and Leach—was reported to the Supreme Judicial Court of Massachusetts, where an injunction was granted. Judge William Allen, in the opinion, said: "The illegal scheme has been found to exist by the court below. The act of displaying banners with devices, as a means of threats and intimidation, to prevent persons from entering into or continuing in the employment of the plaintiff was injurious to him, and illegal at common law, and by the statute of this State. We think the plaintiff is not restricted to his remedy by an action at law, but is entitled to relief by injunction. The acts and the injury were continuous. The banners were used more than three months before the filing of the plaintiff's bill, and continued to be used to the time of the hearing. The injury was to the plaintiff's business, and adequate remedy could not be given by damages in a suit at law. The wrong is not, as argued by defendants' counsel, a libel on plaintiff's business. It is not found that the inscriptions upon the banner were false, nor do they appear to have been in disparagement of the plaintiff's business. The scheme, in pursuance of which the banners were displayed and maintained, was to injure the plaintiff's business, not by defaming it to the public, but by intimidating workmen, so as to deter them from keeping or making engagements with the plaintiff. The banner was a standing menace to all who were or wished to be employed by the plaintiff, to deter them from entering his premises. Maintaining it was a continuous and unlawful act, injurious to plaintiff's business and property, and was a nuisance, such as a court of equity will grant relief against."

CONTRACT IN RESTRAINT OF TRADE.

N. owned certain land which contained deposits of sand, and he sold to S. a portion of the property, about half an acre, upon the condition that he would not sell any sand off the premises. The deed contained this covenant. S. conveyed his land to his son R. S., but his deed for it had no reference to the restrictive covenant in N's deed to him. Against the protest of N., R. S. opened a sand pit and began to sell sand, and he sued for an injunction, but his complaint was dismissed on the ground that the covenant was against public policy, and void. N. died, and his executor was substituted as plaintiff. The case, Hodge *vs.* Sloan, was carried to the Court of Appeals of New York, where the plaintiff prevailed. Judge Danforth, in the opinion, said: "The decision below is against our idea of natural justice, for it takes from one party an advantage which he refused to sell, and secures to the other, without price, a privilege which his grantor was unable to buy. The covenant is not against public policy, for if it is in restraint of trade, it is still valid if it imposes no restriction on one party which is not beneficial to the other, and was induced by a reasonable consideration—or, in other words, if it was a proper and useful contract, or such as could not be disregarded without injury to a fair contractor. The covenant also ran with the land and binds R. S. though it is not mentioned in his deed."

Terms Used in Electrolytic Deposition of Metals.—The terms "cathode" and "anode," says an electrical paper, are synonymous with the positive and negative poles of an electric or galvanic battery. Then to measure the volume of electricity passed between these points, the term "ampères" is used as the unit, like feet or cubic feet, for measuring in the usual mechanical sense. For expressing the force with which the volume of electricity is propelled, the term "volt" is used as the unit. The resistance opposed to the electricity is measured by "ohms." The work done in the electrical circuit is expressed by "watts" in the same way that in a steam engine the power developed is expressed by h. p. To put it briefly, thus:

1 ampère x 1 volt = 1 watt.
1 watt x 746 = e. h. p.

These are the electrical terms employed by common consent in all European languages in connection with this science.

In a report to his company the chief engineer of the Engine, Boiler and Employers' Liability Insurance Company, of London, England, proposes the following rule for the safe working pressure for cylindrical furnaces in flues: Safe working pressure $= \frac{50\ t^2}{\sqrt{l\,d}} - \frac{d}{l}$ where t = thickness of plate in thirty-seconds of an inch, l = length of flue in feet, d = diameter in inches.

THE WEEK.

The Senate Finance Committee will begin its hearings on the alleged copper trust to-day.

The Treasury Department has refused to grant the application of Messrs. Snow & Burgess, New York, for a refund of all or part of the duties recently exacted upon the sheathing metal withdrawn in 1886 for use in construction of the ship Corsica, with a rebate authorized by the Tariff Act of 1883, on the ground of the applicants, that the vessel has been confessedly employed in the coasting trade for more than two months during the year ending February 6, 1888, and of the express provision contained in said law that vessels receiving the benefit thereof shall not be allowed to engage in the coastwise trade more than two months in any year, except upon the payment of the duties upon which a rebate is allowed.

A. M. Shannon & Co., of Galveston, are the lowest bidders for the construction of the Government jetty at that port. Their bid is $402,475.

Samuel B. Hale went to Buenos Ayres in 1828 as a banker under the auspices of the Messrs. Lawrence, of Boston, and died a few days ago, leaving a fortune of $15,000,000. He was a pioneer in the South American trade, and of late years became interested in sheep and cattle ranches.

A City of Mexico special to the Boston *Herald* says that the Mexican Central Company have signed a contract with the Government to deepen the bar at Port Tampico, making it the best on the Gulf, and aiming a heavy blow at the supremacy of the port of Vera Cruz.

The probable profits on the big Joggins raft, towed from Nova Scotia to this city, are estimated as follows: The piles are worth 5 cents per foot in New York, or say $2 each. They cost 60 cents each at the point of shipment. An ordinary schooner will carry 500 or more in a cargo at a freight of $1 each stick, or $1.60 laid down in New York. The 22,000 sticks in the raft would afford cargoes to 44 vessels and a freight of $21,000. The actual cost of the piles on the shore is $13,000. They will realize $44,000. That gives a profit of $9000 if shipped by the vessels. Competent authorities say the whole cost of construction and towing will include $10,000, thus leaving a profit of at least $21,000.

The New York Cotton Exchange has issued its first official statement of the cotton crop of the United States. The following is a summary:

	1887–88. Bales.	1886–87. Bales.
Total port receipts	5,612,448	5,301,532
Net overland movement (including to Canada)	1,001,261	820,869
Takings by Southern mills from the interior	433,124	377,184
Total crop	7,046,833	6,499,585

The crop last year was the largest ever grown in America, being 547,248 bales in excess of the previous one and 96,000 greater than the remarkable crop of 1882–83.

The Dominion fisheries is a subject exciting special interest in Canada in the prospect that important disclosures respecting their management will take place at the coming session of Parliament. The report for 1887, only now made public, shows a slight falling off in the catch of last year, as compared with 1886. The total value of the fisheries in 1887 was $18,386,103, divided by provinces as follows: Nova Scotia, $8,379,782; New Brunswick, $3,559,506; British Columbia, $1,974,887; Quebec, $1,773,567; Ontario, $1,531,849; Prince Edward Island, $1,037,425; Manitoba and Northwest Territories, $129,084. As compared with 1886, there was a decrease of $293,184. The total number of men employed in the fisheries was 59,933; number of vessels, 1168, aggregating 44,485 tons and valued at $1,989,840. Altogether there is a capital of $6,748,840 invested in the fishing industry.

The Massachusetts Institute of Technology is expected to have a membership this year of at least 300 students in the freshmen class, against 270 last year.

The Allegheny County Court House, in Pittsburgh, has been completed at a cost of $2,268,000. Norcross Brothers, of Boston, were the contractors. There are 2500 electric lights in the building. The natural gas fire grates number 38. They are of every variety, the imitation logs and tiles being odd and unusual. In the cellar is a battery of 9 boilers to furnish additional heat and manufacture the electricity for light and call bells. The granite used in the walls and tower measures 260,651 feet; the granite ashlars 87,346 feet, the marble wainscoting 8796 feet, 5515 feet of marble carving, and 157,222 feet of foundation stone. There are over 15,000,000 brick in the structure, 28,197 square feet of plate glass, and many hundred tons of iron.

The name of Paso del Norte, the important railway center on the Mexican border, has been changed to City of Juarez. It is now emerging from the adobe period of its history.

The followers of the exiled King Maletoa, in Samoa, are in arms against German domination in that island, to the number of 3000, but resistance is futile. The island is doubtless destined to be the center of German jurisdiction in the Pacific. The exports and imports of the islands through German traders are far greater than those of all other nationalities combined, and the German tonnage also surpasses the aggregate of all other countries.

Howard Potter, of the firm of Brown Brothers, in Wall street, claims one-fourth interest in the Couch estate in Chicago, valued at $4,000,000, and the case is before Judge Gresham.

Western New York promises a great apple crop, Niagara County alone contributing 1,000,000 barrels.

Agriculturists in the United States find that their profits, taken year after year, are narrowing down. The last annual report of the Bureau of Statistics shows the export prices of agricultural products for decennial periods as follows:

	1867.	1877.	1887.
Corn per bushel	$1.00	$0.58	$0.47
Wheat, per bushel	1.27	1.16	.89
Flour, per barrel	8.84	6.48	4.51
Cotton, per pound	.30	.11	.09
Bacon and hams, per pound	.12	.10	.07
Lard, per pound	.14	.10	.07
Pork, salted, per pound	.13	.09	.06
Beef, salted, per pound	.12	.07	.05
Butter, per pound	.24	.20	.15

As concerns grain, low prices may be ascribed to the competition of India and South America. Lard and dairy products have suffered severely from adulteration. Both France and Germany have discriminated against American pork. Another explanation is found in the fact that cheaply run "tramp steamers" scour the globe in search or the cheapest markets. Thus, the ports of Russia, India, South America and Australia are every year brought into closer connection with the main central points of consumption, to the disadvantage of American farmers.

A resident of Turk's Island, West Indies, proposes to build a schooner to make trading voyages between the port of Hayti, San Domingo and Turk's Island and New York. The owner intends to import goods from New York, and receive them at Turk's Island in bond, and thence forward them to such point as may seem desirable.

The brick yards at Haverstraw and other points on the Hudson River were deluged with water, suspending operations.

The exports of machinery from the port of New York during August were valued at $327,876.

Complaints are frequently made to the Treasury Department of alleged erroneous reappraisements of imported merchandise said to be due to the selection as merchant appraisers of persons who are not familiar with the value and character of the merchandise appraised. In order to obviate further complaint on this score the Department has amended the customs regulations so as to require the merchant selected for that service to make oath that he is familiar with the character and value of the merchandise to be appaised.

Yellow fever causes much consternation in some parts of the South. At Jacksonville there is no improvement. At Memphis only mail cars are permitted to enter from the infected cities. Decatur, Ala., is almost depopulated At Montgomery troops are enforcing the quarantine. New York responds liberally to the call from Jacksonville by subscribing some $80,000, besides forwarding large quantities of provisions and general supplies.

A training ship for Philadelphia has been secured for Philadelphia through the influence of prominent business men in that city, and the Government ship Jamestown will be fitted up for instruction in practical navigation. The City Council will be asked to appropriate $11,000 for its maintenance.

In real estate and banking circles in this city a profound sensation was caused by the discovery that Bedell, a long trusted clerk in the law office of Barlow, Laroque & Shipman, had obtained $264,000 on bogus mortgages. The amount is thus apportioned: Farmers' Loan and Trust Company, $109,500; Herman Koob & Co., $17,000; Robert Center, $43,000; J. Egmont Schermerhorn, $58,500; E. Sloan, $30,500, and some other clients of the firm, $6500. These parties expect that the lawers will made their losses good; the lawyers, in turn, will seek reimbursement from the Broadway Bank, on the around that the bank is responsible for money paid on forged indorsements. The bank, in turn, may look to Bedell and the notary, Henry, who is implicated in the various transactions.

On the 17th inst. Charles A. Pillsbury & Co., of Minneapolis, Minn., the largest flour-milling firm in the world, divided $40,000 among their employees, in pursuance of a profit-sharing system adopted four years ago. For two years there were no profits to divide, but the past year witnessed a change, large returns were received and the firm have thus been enabled to show their good faith. Few concerns have ever distributed among their employees a larger gross annual amount as their share of profits.

West Superior, in Wisconsin, is among those cities in the Northwest which aspire to control the course of trade in that direction. She thinks she has gained a point through the construction of the Eastern Railway of Minnesota now nearing completion. The editor of the *Inter-Ocean* says: "That territory in the Northwest, which must eventually divide its business at least between the cities at the head of Lake Superior and the city at the heel of Lake Michigan, is as large in

area as ten Englands, and capable of maintaining without poverty 100,000,000 people. It will, on a moderate estimate, within the next cycle of ten years, contain 6,000,000 of people, capable of supporting with the produce of its own soil the Twin Cities with 500,000 inhabitants, and Twin Cities at the head of Lake Superior with a population of 250,000. Our development will be somewhat retarded at the start by the enormous powers of absorption of St. Paul and Minneapolis. But eventually our growth will astonish and in a large measure supersede theirs."

The sudden collapse of paper money in Peru forms the subject of an interesting communication from Consul Brent. The calamitous termination of the war with Chili so far impaired confidence in the ability of the government to redeem its notes that the purchasing power of paper money dropped to about one-twentieth of that of silver. Nevertheless, up to within a year the absence of other circulating mediums caused the paper to be retained in use, although the fall in its exchangeable value had brought ruin to numbers of people whose means were represented by it. At the present time, however, paper money is virtually repudiated in all business transactions not directly connected with the government. It is of value only in paying duties to the extent of ten per cent. It is estimated that there were 60,000,000 paper sols in circulation or in private hands. This sum was equivalent to 2,000,000 silver sols, and in the course of week was practically lost. Such a blow to a nation in such financial straits as Peru is hardly conceivable abroad. Numbers of families in Callao and Lima for a time were unable to buy the necessaries of life.

The recent report that the Rhode Island coal mines have been purchased by the Worcester Iron Works, of Worcester, Mass., has been confirmed. It is stated that the mines are to be opened once more, new and improved machinery is to be employed in mining, and the purchasers are sanguine that in their hands the enterprise can be made profitable.

D. W. C. Carroll, of Pittsburgh, and Morris and Karttrell, of Chicago, have closed contracts for the building of two iron viaducts for the city of Denver, Col., to cross the railroads in that city. One viaduct is to be 376 feet long and 32 feet high, and the other 785 feet long and 32 feet high. The viaducts are to be made of structural iron, including the approaches. The viaducts cost $97,000 and the approaches $21,000 additional.

The New Orleans *Times-Democrat* says: "The following is the assessment of several Southern States during the census year and for 1887-88. The assessment now being made will show a still larger increase:

	1887-88	1879-80.
Alabama.....	$214,925,869	$117,486,181
Arkansas.....	148,868,206	86,409,364
Florida.....	84,860,534	29,471,618
Georgia	341,504,921	235,650,530
Kentucky.....	483,491,690	318,037,875
Louisiana	221,500,000	158,587,495
Mississippi.....	129,887,254	106,594,708
North Carolina	210,035,453	156,100,202
South Carolina	141,495,056	132,027,986
Tennessee.....	239,750,000	211,768,538
Texas.....	650,412,401	304,493,163
Virginia.....	374,043,338	308,455,135
Total....	$3,240,774,722	$2,164,792,795

Nearly 11,000 tons of henequin have been imported into the United States from Mexico within the last three months.

It is reported that a syndicate has been formed by Governor Gordon, Henry W. Grady, and others, of Atlanta, Ga., and John H. Inman, Calvin Brice, General Samuel Thomas, Dr. Norvin Green, and others of this State, for the purpose of building a city at Rockmart, Ga., and developing the slate and marble quarries there. The slate quarries on which the syndicate have an option are valued at $10,000,000. The property cost the syndicate $400,000 in cash and $4,000,000 in stock.

The Lehigh Valley Transportation Company, of Buffalo, have just contracted for two propellers to be built by the Globe Iron Works, Cleveland, which are to be finished by the opening of navigation next season. Each vessel will be 308 feet over all, 290 feet keel, 40 feet beam and 25½ feet hold. Each will carry four masts and the engines and boilers will be near the middle of the ship.

The port of Beyrout, the financial center of Syria, midway between Smyrna and Port Said, is to be made a harbor of refuge for vessels navigating that part of the Mediterranean under an imperial concession, and the work is to be pushed rapidly to completion. Jetties are to be built which will form an inner harbor of 56 acres, with wharves, storehouses, tramways, &c. The work will cost $1,200,000 and it must be completed within five years.

The steamers plying between New York and Vera Cruz via Havana will shorten their time to 8½ days between the two ports, making the round trip one week less than heretofore, greatly to the advantage of traders.

The Cunard steamer Etruria once more beats the record, having arrived at this port from Liverpool on Saturday, after a passage of 6 days 1 hour and 50 minutes—the best time ever made by a transatlantic vessel. The Etruria had previously held a record of the quickest ocean voyage—6 days 1 hour and 55 minutes. The vessel left Queenstown on Sunday, September 16, at 1.15 p. m. On the first day she made 437 knots; on the second day, with fair weather and a moderate breeze, she covered 465 knots; on the third day, despite a westerly swell, 456 knots were passed, and with moderate winds and fine weather on the fourth day 490 knots were left behind. On the fifth day, despite two hours of fog in the morning, she again covered 490 knots, and on the sixth day, with everything favorable, only 455 knots were placed to her credit. The vessel's average daily run was 460 knots, and per hour she averaged 19.2 knots.

A rapid transit scheme for cattle in palace cars from the Western plains to the seaboard has been inaugurated by a New York company, who promise to deliver stock in the market in less than 120 hours from the Idaho ranges, 2500 miles distant. The animals are fed and watered *en route*.

Traffic between Vera Cruz and the Mexican capital is suspended for at least a fortnight, on account of the destruction by floods.

How Norwegians are able to compete successfully in the trade with the United States and even find profitable employment in the maritime provinces of the Dominion is easily explained. The first cost of a Norwegian vessel is about one-half of the cost of an American vessel, and the crews employed receive about $10 a month. Naturally not a few Norwegian seaman seek to better their condition on this side of the Atlantic.

Trials of Rapid Firing Guns.—A report has just been made to the British War Office upon the experiments recently carried out with the Maxim gun at 600 and 800 yards, in comparison with fire from Martini-Henry rifles. At 600 yards 15 men, all first or second class shots, fired ten volleys and made 52 per cent. of hits in 3 minutes 36 seconds, while the Maxim, firing the same number of rounds at the same targets, made 81.56 per cent. of hits in 2 minutes 36 seconds. At 800 yards the results were: 15 Martini-Henrys, 40.66 per cent. of hits in 3 minutes 40 seconds; Maxim, 80 per cent. in 1 minute 30 seconds. The targets were arranged so that the volleys fired by the men were directed alternately a quarter right and a quarter left, the intervals between the targets being 12 yards; the Maxim fired 15 shots alternately on each target. Further experiments are to be made at unknown distances, and as nearly as possible under service conditions, at ranges between 1000 and 1200 yards; and on this occasion the new service rifle, with dial sight, is to be tested.

Recent Treasury Decisions.

The Secretary of the Treasury has issued the following decisions under the customs laws affecting metals:

DUTY ON "REMELTING STEEL."

On an appeal from assessment of duty at the rate of 45 per cent. ad valorem on certain so-called "remelting steel" claimed to be duitable at 20 per cent. ad valorem, as unwrought metal, or at $\frac{3}{10}$ cent per pound by similitude to pig iron, spiegeleisen, wrought and cast scrap iron and scrap steel, or at not more than 35 per cent. ad valorem, under the provision for iron in slabs, blooms, loops, &c. The Department says: "From the special report of the appraiser, it appears that the merchandise in question consists of the best quality of Bessemer steel slabs or cakes, intended for use in the manufacture of finished steel plates, sheets, or bars, and that it was returned and assessed with duty as steel in slabs, under the provision for 'steel ingots, * * * and slabs, by whatever process made, * * * valued at 4 cents a pound or less.' The assessment of 45 per cent. is affirmed."

COVERED DRESS STEELS.

The appellants claim that the merchandise in question is dutiable either at 3½ cents per pound, as steel strips valued over 10 cents per pound, or at 35 per cent. ad valorem. As the merchandise is admittedly an article composed in part of steel, the Department is of opinion that it was properly classified, imposing duty at the rate of 45 per cent. as manufactures of steel and cotton.

DUTY ON LARDING NEEDLES.

Under a claim of appellants on larding needles dutiable at 20 per cent. ad valorem the Department says: "It appears, from the special report of the appraiser, that the articles in question are in no sense needles, but consist of what are commercially known as 'larding pins,' the same being conical in shape, made wholly of metal, and varying in length from 6½ inches to 9½ inches, each having one of its ends very finely pointed and sharpened and its other end broad and hollow, for the purpose of receiving strips of lard, which, by use of these pins, are passed into and deposited in meats preparatory to cooking, the process being termed 'larding.' In the opinion of the Department these articles, which are used for culinary purposes only, and which are not either commercially or otherwise known as 'needles,' are liable to the rate of duty 45 per cent. ad valorem assessed under the provision for 'manufactures, articles or wares, * * * composed wholly or in part of iron.'"

CHAIN LINKS.

1. Certain links with movable bolts, for the adjustment (by shortening or lengthening) of chains, and which are first forged and then finished by boring, &c., and subsequently japanned or galvanized, are not forgings of iron within the meaning of the tariff, but are dutiable as manufactures of iron not otherwise provided for, under T. I., 216. (Letter to Collector of Customs at New York, September 3, 1888.)

MANUFACTURING.

Iron and Steel.

Operations have been resumed in the socket department of the works of the Pittsburgh Tube Company, at Pittsburgh. As soon as enough stock is secured the balance of the works will resume operations.

Last week there was shipped from the works of the National Tube Works Company, at McKeesport, Pa., the last of a large order for the City Water Works, at Carson City, Nev. The contract required the use of 28 cars to transport the pipe. Most of it was 24 inches in diameter.

The new sheet mill just added to the extensive plant of the Standard Iron Company, at Bridgeport, Ohio, was successfully put into operation on Monday, the 17th inst. The three-high plate mill now in course of construction will be completed and ready for operation about October 1 next. The mills were built by the Lewis Foundry and Machine Company, Limited, of Pittsburgh, Pa.

M. V. Smith, metallurgical engineer, of Pittsburgh, has just been appointed consulting engineer for the Minnesota Car Company, of Duluth, Minn., with headquarters in Pittsburgh. This new company is composed principally of capitalists from Richmond, Va., the president being John Anderson, of the Tredegar Company. The capital is $400,000, all of which has been paid in. The plant will consist of a rolling mill with two trains of rolls, one 10-inch and one 18-inch, machine shops, foundry and car works having a capacity of 30 cars per day. Ground has already been secured, and work on the new buildings will be commenced at an early date. The bulk of the machinery will be supplied by Pittsburgh manufacturers.

The Carrie Furnace Company, of Pittsburgh, have decided to erect another blast furnace at Rankin Station, on the Baltimore and Ohio Railroad, adjacent to their present furnace located at that place. It will be 18 x 80 feet, and will have a capacity of about 200 tons per day. The contract for the erection of the furnace will probably be let the present week, and work will be commenced as soon after as possible.

Charles Huston & Sons, proprietors of the Lukens Rolling Mills, at Coatesville, Pa., have commenced the erection of a building for library purposes in the interest of their workmen and their families. Besides the library apartment it will have two classrooms, in which instruction in sewing will be given to the daughters of the workmen. A small library has been open to the men for some time, and this is now to be enlarged and benefits extended to the families.

The manufacturing industries of the Shenango Valley, Pa., are reported to be in better condition at the present time than for some years past. The following brief statement received from Wheatland, Pa., under date of the 19th inst., gives the condition of the various enterprises on that date, as follows: "Greenville mill in all departments is on double; Sharpesville, with one or two exceptions, all her blast furnaces in full blast; Sharon, P. L. Kimberly & Co.'s mills and furnaces pushed with orders; also the Sharon Iron Works working full with large orders ahead; Stewart Iron Company mill with 13 furnaces making a fine quality of steel and rolled billets, one blast furnace on, the other repairing; foundries all working full; Wheatland still idle, but with bright prospects for a glorious future. At West Middlesex one furnace making an excellent quality of Bessemer iron and the other to be put in operation as soon as possible. The manufacturers say that they have orders enough to keep the mills running full until next fall."

The Helmbacher Forge and Rolling Mills Company have not as yet reorganized since the old board of directors was re-elected at the stockholders' meeting—at any rate they had not up to last Monday. The works were idle during the early part of the week to admit of repairs to engines, &c., and were to restart as soon as these were completed.—*Age of Steel, St. Louis.*

Work on the new blast furnace of the Gadsden Furnace Company, at Gadsden, Ala., is progressing rapidly, and it is expected to be ready for blast by October 1 next. It will have a capacity of 100 tons per day.

The nail factory of the Laughlin Nail Company, at Wheeling, W. Va., continues in constant operation, the company finding a ready market for their product as fast as produced. Their factory is next to the largest in the world, containing 220 nail machines.

In our issue of last week we made mention of the fact that the Wayne Iron and Steel Works, of Brown & Co., at Pittsburgh, were closed down in all departments on account of a labor dispute. The trouble has since been amicably arranged and the plant is again in operation in all departments.

The Lloyd-Booth Company, proprietors of the Falcon Foundry and Machine Works, at Youngstown, Ohio, have purchased the machinery that has already been erected in the partially completed rolling mill at Bowling Green, Ohio, and will remove it to Youngstown and scrap it. The mill was to have been built by parties from Youngstown and others interested in the rolling mill at Portsmouth, part of which was to be used at Bowling Green. The citizens of Bowling Green offered a bonus if the mill was ready to turn out iron at a certain time. Part of the buildings were erected, when a storm blew the structure down. This discouraged the owners, and as they would not rebuild in time to claim the bonus the project fell through. The plant was sold at sheriff's sale:

The steel department of the plant of the Pottsville Iron and Steel Company, at Pottsville, Pa., which has been idle for about two months, has resumed operations, giving employment to about 90 men. All departments of these works, consisting of rolling mill, puddling mill and steel department, are being operated to their utmost capacity.

Clinton Furnace at Pittsburgh, formerly owned by Graff, Bennett & Co., and which has been idle since the suspension of that firm in the early part of the year, was blown in again on Monday the 17th inst. The syndicate of creditors which purchased the plant of the firm will operate it as soon as a sufficient supply of pig iron is obtained. The Clinton Rolling Mill, situated in close proximity to the furnace, will also be started up. The resumption of operations by this furnace leaves but three idle blast furnaces in Allegheny County at the present time, all of which are undergoing repairs. There are the Edith of the Edith Furnace Company, Lucy No. 2 of Carnegie Brothers & Co., Limited, and Soho of the Moorhead-McCleane Company.

One of the Musconetcong furnaces at Stanhope, N. J., went into blast on the 17th inst

On Monday, the 17th inst., the heaviest casting ever made by the Pittsburgh Steel Casting Company was successfully run at the works of that company in Pittsburgh. This was the pouring of the stem post of the warship Maine, now in course of construction at the Brooklyn Navy Yard. It is an L-shaped affair, the two arms measuring respectively 26 and 13 feet, portions of the casting being 42 inches thick. This heaviest portion is to act as a ram when upon the bow of the Maine. To fill the mold, 11 tons of steel were required, and the finished casting will weigh about 18,000 pounds. The length of the longest arm of the casting is 26 feet, that of the shortest is 13 feet 10 inches. It is 18 inches in width, and varies from a little over an inch to 42 inches in thickness. It must stand a Government test of 60,000 pounds tensile strength to the square inch, and an elongation of 10 per cent. in 8 inches. A piece of the cold metal an inch square must be bent at an angle of 90 degrees without fracture. The casting will be removed from the mold the present week, and will then be placed in an annealing furnace. A Government test will be made shortly afterward, and if it proves satisfactory it will then be delivered to the Government. The stern post and rudder for the Maine will also be cast by this firm in the course of a few weeks. The former will weigh but little less than the stem post, while the rudder will weigh about 14,000 pounds.

Machinery.

The Wheelock Engine Company, of Worcester, Mass., have been compelled to operate their works night and day to keep pace with their orders. Among their recent shipments are a 200 horse-power engine to the Linseed Oil Works, Sioux City, Iowa, and one of the same size to the Gleason Knitting and Mfg. Company, Seneca Falls, N. Y., and 150 horse-power engine to the B. Shoninger Company, New Haven, Conn. They are engaged on a large amount of repair work, including a good order for the Agawam Paper Company, Miltineague, Mass

The plant of the New Process Twist Drill Company, at Taunton, Mass., has been bought by P. H. Corr and others, who will assume all liabilities and form a new company. The price paid was $5000. It is stated that the new company will at once proceed to put the works in operation again.

The Ranken & Fritsch Foundry and Machine Company have filed articles of incorporation in the recorder's office, at St. Louis, with a capital of $150,000. The new company are composed principally of the old stockholders of the Smith, Beggs & Ranken Machine Company, whose failure was noted some months ago.

The Standard Underground Cable Company, of Pittsburgh, have closed two large contracts for electric-light cables for Chicago. One contract was made with Prof. J. P. Barrett, superintendent of the Electrical Department of Chicago, for 5 miles of electric light cable, which will connect with the municipal light station of that city and distribute the current to 65 arc lamps, each having a lighting capacity of 2000 candle-power. The other contract is to furnish 50,000 feet of cable for the Consumers' Electric Cable Company, of the West Side, Chicago. The incandescent electric light will be used in the latter place, and the Westinghouse Electric Company have secured the contract for furnishing the lamps.

The Phœnix Iron Works, of Meadville, Pa., under date of the 17th inst., writes us as follows: "We are building an addition to our machine shop building 100 x 40 feet, in which will be located our blacksmith shop and erecting shop, all of the present building, including space now occupied by blacksmith shop and office, will be thrown into the machine shop proper. We have been obliged to get more room and put in additional machinery to keep up with our orders for our new

automatic cut-off engine. We expect also to increase our boiler shop facilities in the near future, as we are now crowded beyond our present facilities. We are also building a new office and drafting-room, said building will be 25 x 50. All the above will be substantial brick buildings."

The Wilson Mfg. Company was recently incorporated at Chicago, with a capital of $300,000, for the purpose of manufacturing automatic regulating valves, faucets, &c. The incorporators are E. F. Brown, Jr, Robert W. Clarke and F. C. Rutan. Also, the Oregon Foundry Company, Oregon, Ill., with a capital of $3000, by Frederick G. Jones, Benjamin F. Sheets and R. A. Austin.

The Hughes Steam Pump Co., of Cleveland, Ohio, have just completed the boilers and pumping machinery for the Salisbury Water Company, of Salisbury, Md. The pumping engine is of the compound duplex non-condensing type and has a capacity of 500,000 gallons per diem.

The Jeffrey Mfg. Company, of Columbus, Ohio, have made shipments of their Coal Mining Machinery and Power Coal Drills, recently, as follows: Reinecke Coal Co., Madisonville, Ky., One Power Drill; Cherokee & Pittsburgh Coal Mining Co., Pittsburgh, Kansas, Two Mining machines and One Power Drill; Canon City Coal Co., Brookside, Col., One Power Drill; Coal Bluff Mining Co., Clay City, Ind., One Mining Machine; Union Pacific Coal Co., Rock Springs, Wy. Ty., Four Mining Machines. (These are in addition to the eight now in use at their mine, No. 4.) Sunnyside Coal Co., Evansville, Ind., Three Coal Drills; San Pedro Coal and Coke Co., Carthage, New Mexico, Two Power Drills; Sand Coulee Coal Co., Great Falls, Montana, Two Mining Machines; Spring Valley Coal Co., Spring Valley, Ill., Two Mining Machines.

The Hill Clutch Works of Cleveland, Ohio; report recent sales to E. P. Allis & Co., Brush Electric Company, Niles Tool Works, Walker Mfg. Company, Wm. Tod & Co., Geo. V. Cresson, Lane & Bodley and Fraser & Chalmers. They have also in hand complete power plants for the Oakland Electric Light Company, Cal.; Huntington Electric Light Company, W. Va.; St. Paul Gas Company, Electric Light Company, Helena, Mon. These companies report that they are working to the utmost limit of their capacity night and day, and are constantly enlarging their facilities to keep pace with their increasing trade.

Among the new factories being put up in the South is one under construction known as the Eufaula Cotton Mills, at Eufaula, Ala. It is to contain about 8000 spindles and 240 looms. The machinery is being constructed by the Lowell Machine Shop, of Lowell, Mass., and the belting will be supplied by the Page Belting Company of Concord, N. H.

The Washburn & Moen Mfg. Company shipped recently to the North Hudson County Railway Company at Hoboken, N. J., 13,000 feet of 1½-inch steel rope on one reel. The rope weighed 50,144 pounds.

Hardware.

Besides the introduction of Crude Oil as a fuel in their works, the St. Louis Shovel Company, St. Louis, Mo., have put in additional machinery which will give them an increased product, making their daily output 200 dozen Shovels, Spades and Scoops.

The Syracuse Forging and Gun Company, Syracuse, N. Y., whose works were partially destroyed June 2 by fire, have restored the works and are again in active operation, having had a delay in the progress of the business of about two months. The wheel plant of this company, which sustained severe damage by the fire mentioned, is again in running order, and the company are now prepared to receive orders and to supply the large demand which they had established before the fire.

Jewett & Hatheway, Bridgeport, Conn., have begun the manufacture of sheet metal goods, patented novelties, light hardware, wood and metal patterns, dies, &c., corner of South avenue and Water street.

The Perkins Specialty Lock, Cleveland, Ohio, referring to the fact that the increasing demand for their goods has necessitated the extension of their manufacturing facilities, state that their company will hereafter be known as the Perkins Lock Mfg. Company, and aliude to their increased capital and enlarged manufacturing facilities.

The Hollenbeck Lock and Knob Company, until June last in Syracuse, have completed new works in Jordan, N. Y., to which they have removed, and where they will continue the manufacture of hardware specialties. The new plant embraces a four-story structure, 70 x 50 feet, and adjoining foundry, 40 x 70 feet, with an annex for japanning purposes, 30 x 20 feet. The first floor includes the offices, sample and shipping department, as well as machine and iron rooms. The second floor is occupied as a brass foundry, and assembling stock and pattern shops; the third floor being used for wood-working and varnishing, and the basement for polishing, coloring and lacquering. These works are located on the stream known as the outlet of Skaneateles Lake, which furnishes a never-failing supply of power.

Henry Seymour Cutlery Company, Holyoke, Mass., have recently erected an addition to their factory, 120 x 30 feet, to accommodate their increasing business. They report that sales for eight months of the year 1888 show an increase of 10 per cent. over corresponding time last year, with an increase also in export trade. They refer to the ruling of the Secretary of the Treasury, placing sheep shears under manufactures of cutlery and 35 per cent. duty, instead of keeping them as they have been heretofore as manufactures of steel at a duty of 45 per cent., as affecting the sale of the goods largely the past season.

Miscellaneous.

A certificate of incorporation has been issued to the Rush Run Coal and Coke Company. The principal office is to be at Staunton, Va. The sum of $20,000 has been subscribed to the capital stock, $2000 of which have been paid in. The privilege of increasing the stock to $500,000 is reserved. Shares are $100 each and are held by F. Harrold, Fayette county; J. F. Effinger, W. P. Tames, A. S. Lara, Staunton, Va.; E. C. Best, Ronceverte, West Va., and C. M. Liggett, Lexington, Va.

A charter has been granted to the Pittsburgh Reduction Company, of Pittsburgh, with a capital stock of $20,000. It is formed for the purpose of reducing bronzes and commercial alloys and manufacturing the same. The shareholders are: Alfred Hunt, H. W. Lash, Robert Scott and Millard Hunsicker, of Pittsburgh; George H. Clapp, of Edgeworth, and W. S. Sample, of Sewickley.

The new coaches in use on the New York and New England's Boston trains from this city are as handsome and comfortable cars as any run out of Providence. They are mounted on the Brunswick spoke wheels, have double windows, which keep out cold and dust, and Pullman curtains. The ceiling finish is in wood, and five double burners in each car give plenty of illumination. The Hale & Kilburn shifting seat, with cherry frame, is used, upholstered in the ordinary coaches with plush, and in the smokers with rattan. Floors, sides and roof are filled with mineral wool which deadens the noise. The road has recently put on fifteen of these new cars.

The Rhode Island Locomotive Works have recently delivered nine ten-wheeled engines to the Chicago, Milwaukee and St. Paul Railway, two more were sent to-day, and four more remain before the order is filled. These are of the same style as others built for the St. Paul. This one railway alone have in use more than 200 locomotives from the Rhode Island Works.

Among recently authorized corporations in Illinois are the following: The Darby Lead Mining and Smelting Company, of East St. Louis; capital, $500,000; incorporators, John C. Nial, George Frey, C. M. Sharpe and Walter H. Darby. The Peoria Cordage Company, at Peoria; capital $200,000; incorporators, Martin Kingman, E. C. Heidrich, Charles A. Jamison and G. H. Schimpff. The Merchants' Arc Light and Power Company, of Chicago; capital, $30,000; incorporators, William H. Collins, Joel W. Stevens and Benjamin Keigher. The Wills Horsenail Company, of Chicago; capital, $12,000; incorporators John H. Purdy, Harry A. Wills and Edward Williams. The American Gear Forging Company, of East St. Louis; capital, $100,000; incorporators, O. Navins, Arthur W. Billings and William S. Long. The Clinton Electric Light, Heat and Power Company, of Clinton; capital, $25,000; incorporators, Vespasian Warner, Clifton H. Moore, John Warner, Abner R. Phares, and Richard Butler. The Anchor Iron Car Roofing Company, of East St. Louis; capital, $50,000; incorporators, H. D. Sexton, Henry O'Hara, and Royal J. Westney. The Galena Electric Light Company, of Galena; capital, $10,000; incorporators, John A. Mensell, August Reid, and Benjamin Franklin Mensell.

Aerial Photography.—M. Arthur Batut, of Enlaure, Tarn, writes to *La Nature* that he has succeeded in taking aerial photographs by means of a kite. He finds that a kite 6 feet 6 inches high by 4 feet 7 inches wide will easily carry a photographic apparatus weighing 2.2 pounds. Our contemporary states that two photos taken by M. Batut at altitudes of about 250 and 330 feet respectively, although faint, give a plan of the house and farm at Enlaure, and may be looked upon as very successful first attempts.

It is rumored that the Argentine Government contemplates placing with our manufacturers contracts for 50 locomotives of various classes, and has already entered into agreements for the purchase of rails and coaches.

Paper pasted, gummed, or glued on to metal, especially if it has a bright surface, usually comes off on the slightest provocation, leaving the adhesive material on the back of the paper, with a surface bright and slippery as ice. The cheaper description of clock dials are printed on paper and then stuck on zinc, but for years the difficulty was to get the paper and metal to adhere. It is, however, said to be now overcome by dipping the metal into a strong and hot solution of washing soda, afterward scrubbing perfectly dry with a clean rag. Onion juice is then applied to the surface of the metal, and the label pasted and fixed in the ordinary way. It is said to be almost impossible to separate paper and metal thus joined. Probably metal show tablets might be successfully treated in the same manner.

TRADE REPORT.

Chicago.

Office of *The Iron Age*, 95 and 97 Washington St., CHICAGO, September 24, 1888.

Pig Iron.—The volume of business continues to shrink, most dealers reporting a very quiet week. A few of them are enjoying a steady demand for lots of 50 to 100 tons from small consumers, and one sale of a round lot of Lake Superior Charcoal Pig was made at $21, four months. A demand for Charcoal, for Car-Wheel purposes, is among the possibilites of the near future, as Car-Wheel manufacturers are sounding the market in anticipation of orders for cars which are expected to be placed very shortly. Their inquiries run largely to high numbers, showing that Old Car-Wheels are scarce, and that consequently a greater proportion of Pig will be needed than usual. It is rumored that some of the Coke furnaces are soliciting business with more vigor than has been the case for several weeks, but this is alleged to be a canard put forth by buyers who hesitate to pay the advanced prices now ruling, and hope to work back to something like the old rates. Furnace companies using Lake Superior Ores state that higher prices for Pig are more likely to be realized than lower figures, because Ore is dearer and Coke seems strongly inclined to mount upward also. Agents for Southern Coke furnaces have been doing very little here of late, the high prices now asked interfering with new business. They fear that deliveries on old contracts which are now being made will be checked by the advance of yellow fever toward the Alabama Iron districts. Cash quotations, f.o.b. Chicago, are as follows: Lake Superior Charcoal all numbers, $19.50 @ $20.50; Alabama Car-Wheel, $26.25; Jackson County Softeners, No. 1, $18 @ $18.50; Hocking Valley Soft Foundry, No. 1, $17.50 @ $18; American Scotch (Blackband) No 1, $19 @ $20; other Ohio Scotch Irons, No. 1, $18 @ $19; Lake Superior Coke, No. 1, $17.50 @ $19; No. 2, $16.50 @ $17; No. 3, $15.50 @ $16; Southern Coke, No. 2, $17.75 @ $18; No. 2½ and Open Bright, $17.25 @ $17.50; No. 3, $16.75; No. 1, Mill, $16.50.

Bar and Structural Iron.—A very light demand is experienced for Bar Iron, but considerable business is expected shortly from car builders, who report increased inquiry from railroad companies. The mills are generally well filled with orders and little anxiety is manifested by their agents for new business. The usual quotation for mill lots of Common Iron is now 1.80¢, half extras, f.o.b. Chicago, and it would take very favorable specifications to shade this to any extent. For small lots from store jobbers are endeavoring to get 2¢, with 1.90¢ named as bottom to best buyers. Mill lots of Structural Iron are quoted as follows, f.o.b. Chicago: Angles, 2.25¢; Universal Plates, 2.25¢ @ 2.30¢; Tees, 2.50¢ @ 2.55¢; Beams and Channels, 3.40¢. Store prices of Angles are 2.40¢ @ 2.50¢; Tees, 2.60¢ @ 2.70; Beams, 3.80¢.

Plates, Tubes, &c.—Business continues fair but little change occurring in volume or character. Heavy Sheets are firmer, and higher prices are asked in some cases, but Plates are without change. Tubes are hardly being maintained at the discount recently agreed upon. Quotations from store are as follows: Heavy Sheets Nos. 10 to 14, 2.65¢ @ 2.70¢; Tank Iron, 2.55¢; Tank Steel, 2.80¢; Shell Iron, 3¢; Shell Steel, 3.25¢; Flange Iron and Steel, 4¢; Fire-Box Steel, 4.75¢ @ 5.75¢; Boiler Rivets, 4¢ @ 4.25¢; Ulster Iron, 3.75¢; Boiler Tubes, 62½ % off.

Sheet Iron.—A few inquiries are noted for mill lots, but it is very difficult to find a manufacturer able to make any deliveries this year. It is claimed that a market could be found here for a great deal more Sheet Iron if a supply was available. Manufacturers' agents state that the consumption for Roofing has grown enormously of late, and they believe that hereafter the Sheet-Iron trade will be more evenly distributed through the year. Some mills are quoting 3¢ @ 3.10¢, f.o.b. mill, for No. 27 for such deliveries as they can make, the higher rate being for earliest shipments. For December 3.10¢, Chicago, is named by a few mills to their regular customers. Jobbers' prices from store are 3.20¢ for No. 24, 3.30¢ for Nos. 25 and 26 and 3.40¢ for No. 27.

Galvanized Iron.—The activity in this branch is more pronounced than ever the past week, showing a decided gain in the volume of business transacted by manufacturers' agents. The demand covers all classes of consumers, but runs more particularly to high-grade material. Prices are firmer, and on some standard brands an advance of 5 % has been made. Jobbers still quote small lots at 60 % off for Juniata, and 60 % and 5 % off for Charcoal.

Merchant Steel.—The demand is irregular, some houses reporting a good business, while others have suffered a period of dullness. Combination prices from store are continued, as follows: Bessemer Bars, 2.30¢ @ 2.40¢; Tool Steel, 8½¢ @ 9½¢; Specials, 13¢ @ 25¢; Crucible Spring, 4.40¢; Open-Hearth Spring, 2.90¢; Open-Hearth Machinery, 2.75¢ @ 3¢; Crucible Sheet Steel, 7¢ @ 10¢. Some of these prices are being shaded by works not in the combination.

Steel Rails.—Nothing has happened during the week to enliven business A few railroad companies are talking of placing orders for 5000 to 10,000 tons, and some even ask quotations for next year's delivery, but they are slow to come to terms. The North Chicago Rolling Mill Company have resumed operations, but the Union Steel Company will shut down in a few days for lack of work. The Joliet Steel Company started up later than the others last spring, and will run longer before they clean up their order book. Quotations are nominally $30 @ $31.

Old Rails and Wheels.—Very few transactions in Old Iron Rails have come to light. One sale is reported at $24, and another $23.50. The exact condition of the Old Rail market is difficult to ascertain, but the impression is quite general that for the present, at least, the upward movement has culminated, though some of those interested are still talking higher prices. The supply has now overtaken the demand, and unless other markets advance it seems reasonable to expect a decline here to some extent. Short ends of Old Steel Rails have been sold at $16.50, but long lengths are worth $19 @ $20. Old Car-wheels are very quiet, with $19 @ $19.50 nominal quotations.

Scrap.—Increasing inquiry for Wrought has run up the price, but this again has checked business, as consumers are indisposed to pay the advance asked by dealers. Steel Scrap is looking up a little, but Cast is still quiet. Quotations for carefully selected are as follows, ℔ ton of 2000 lb: No. 1 Forge or Railroad Shop, $20.50 @ $21; Track, $20; No. 1 Mill, $16; Tank and Pipe, $13; Sheet, $9.50; Horseshoes, $20; Axles, $26; Cast Machinery, $15; Stove Plate, $12; Cast Borings, $9.50; Wrought Turnings, $12.50; Axle Turnings, $14.50; Coil and Leaf Steel, $16 @ $17; Locomotive Tires, $17. Dealers offer $14 for Mixed Country Scrap.

Hardware.—Continued improvement is reported in Heavy Hardware, but reports vary as before with regard to Shelf Hardware, some houses stating that business is even dull, while others are having a most excellent trade. With Western agriculture in its present prosperous condition the general demand for Hardware ought to improve very soon, unless the influence of last year's failure of the crops is so far-reaching as to yet seriously affect the farming interest. Manufacturing consumers of Heavy Hardware are purchasing more freely. Wagon-makers' prospects are particularly bright, and wagon material is correspondingly active and firm. Nuts and Bolts are firmer in sympathy with dearer Iron. The market is bare of Stove Boards, and the jobbers are pushing the manufacturers vigorously for more rapid deliveries, meanwhile borrowing from one another. Prices are now firm at 50 % and 10 % off for Crystallized from store, and other kinds in proportion. In consequence of the advance in manufacturer's price of Zinc, full casks are now held at 6½¢, and smaller quantities at 6¾¢ @ 7¢. Shot has been marked up to $1.45 per bag, and strictly half-and-half Solder to 18¢ ℔ lb., in consequence of the higher price of Lead and Tin.

Nails.—Little is being done in large quantities, or even in carloads, but jobbers are having a good demand for sort-up lots. Nearly every order for Hardware now has Nails in it. Small lots are quoted from store at $2.10 for Steel and $2.65 for Wire, but these prices are being shaded to some extent. The project for the formation of a pool among the manufacturers of Cut Nails is reported to be progressing very favorably, and the signatures of but few more manufacturers are needed to make it operative. If they are not secured by the 1st of October every effort is to be made to have them by the 1st of November. Much importance is being attached to this scheme on account of the high character of the men who are promoting it, and the commanding influence of the works which they control. It is very certain that if the organization is perfected prices of Cut Nails will be marked up.

Barb Wire.—No change has occurred to brighten the prospect. Orders are small and prices are unremunerative. The nominal quotations are 3¢ for Painted and 3.75¢ for Galvanized, but concessions are made even for small lots.

Pig Lead.—The market is in the hands of speculators, who have run up the price from 4.80¢ to 4.90¢. These high prices are bringing out stocks from consumers, who have made sales of several hundred tons at about 4.85¢.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St. PHILADELPHIA, Pa., September 25, 1888.

Pig Iron.—A very decided feeling of strength has been apparent during the past three weeks, and is daily becoming more general. Prices have scored a clean advance of 50¢ ℔ ton, although there are some who are still supplying their regular trade at the old figures, but should the improvement continue it is quite evident the advance would become general. As to the future course of the market it is difficult to pass an opinion, although the feeling at the moment is one of undoubted strength. There is some evidence of a slight hesitancy in purchasing at the advance, and if sellers will be satisfied with the present improvement in prices it is liable to prove a permanent one, and any further pressure toward higher figures, for the present at least, is almost sure to result disastrously, consequently a conservative course is the one to be followed, and will probably be adopted. Overproduction is one of the greatest evils to be avoided, and if this is successfully done the future of the market is in a measure assured. At

the present time the demand averages pretty well up to the supply. Meanwhile sales are being made on the basis of $18.50 @ $19 for No. 1 Foundry, $17.50 @ $18 for No. 2 and $16.50 for Gray Forge, although choice brands in some cases command a trifle more money.

Foreign Iron.—No transactions to report; prices are nominally as follows: $20 @ $20.50, c.i.f. duty paid, for Bessemer and $26 @ $26.50 for 20 % Spiegel.

Blooms.—A fair amount of business is being transacted and prices are firm at about the following quotations: Nail Slabs, $29 @ $29.50; Billets from $30 to $35, f.o.b. cars at mill, according to analysis; Charcoal Blooms, $52 @ $54; Run-out Anthracite $42 @ $44; Scrap Blooms, $33 @ $35 ℔ "bloom" ton of 2464 lb. Foreign at tide, c.i.f., duty paid, $29.50 @ $30.50 for Nail Slabs; $32.50 @ $34 for 4 x 4 Billets, and $35 @ $39 for Siemens-Martin, price according to analysis, &c.

Muck Bars.—Quite a large trade is being done at about $29 @ $29.50 delivered. Inquiries are numerous, although generally at a little less than sellers are willing to take, consequently a number of orders are being held in abeyance, but holders do not seem inclined to shade their figures to any extent.

Bar Iron.—Trade in this department has been very large during the past two or three weeks, and the mills have been able to book a number of large and desirable orders, while some are well filled up to the end of November. Early deliveries are not obtainable except at full quoted rates, say 1.9¢ @ 1.95¢; although for good-sized orders 1.87½¢ might be accepted. Skelp has been somewhat active during the past week at 1.87½¢ @ 1.9¢, although bids are on the market at 1.85¢, but are not very anxiously sought after by sellers. The price of Bar Iron from store has been advanced from 1.9¢ to 2¢ per pound.

Plate and Tank Iron.—The mills all report a good business and indications point to a continuance for the next two months at least. Prices while not higher are quoted firm at about as follows: Ordinary Plate and Tank Iron, 2.05¢ @ 2.15¢; Shell, 2.4¢ @ 2.5¢; Flange, 3.5¢; Fire-Box, 4¢; Steel Plates, Tank and Ship Plate, 2.3¢ @ 2.4¢; Shell, 2.7¢; Flange, 3¢ @ 3½¢; Fire-Box, 3½¢ @ 4½¢.

Structural Iron.—Trade is somewhat slow in this department, but mills are, to a certain extent, well filled with old contracts, and, with such small orders as are received daily, are able to work pretty well up to their capacity. Prices show no change and are quoted as follows: 2.10¢ @ 2.15¢ for Bridge Plate; 2¢ @ 2.10¢ for Angles; 2.6¢ @ 2.7¢ for Tees, and 3.3¢ for Beams and Channels, Iron or Steel.

Sheet Iron.—The demand is a little slow, but stocks are not allowed to accumulate to any great extent, as mills are generally able to market what they make up without any serious trouble. Prices remain as last quoted—viz.:

Best Refined, Nos. 26, 27 and 28	3¼ @ 3½¢
Best Refined, Nos. 18 to 25	3 @ 3¼¢
Common, ¼¢ less than the above.	
Best Bloom Sheets, Nos. 26 to 28	4½ @ 4⅝¢
Best Bloom Sheets, Nos. 22 to 25	4 @ 4¼¢
Best Bloom Sheets, Nos. 16 to 21	3½ @ 3¾¢
Blue Annealed	2.8 @ 3 ¢
Best Bloom, Galvanized, discount	62½ %
Common, discount	67½ %

Merchant Steel.—The increased demand for the better grades of Steel continues to be the only feature. Prices remain unchanged, as follows: Tool Steel, 8½¢; Machinery, 2.6¢; Crucible Spring, 4½¢; Open-Hearth Ordinary Spring, 2.7¢ @ 2.9¢; Crucible Machinery, 5¢; Best Sheet Steel, 10¢; Ordinary Sheet, 8¢.

Steel Rails.—There is no improvement of any kind in this department. Orders are scarce, but mills are kept fairly busy on outside specialties. Prices are nominally $29, at mill, but it is intimated that this figure could be shaded on good sized orders.

Old Rails.—No sales of any consequence to note. There are a number of Rails held in store here, but holders do not seem anxious to name figures—at least not for the present—although bids are on the market at from $23 to $23.50, which, however, is somewhat less than holders expect to realize.

Scrap Iron.—Occasionally orders for good round lots are heard of, but the bulk of the trade at the moment seems to be in small-sized orders at about the following figures, say $20.50 @ $21 for cargo lots; $21.50 @ $22 for carload lots, delivered, or for choice $22.50 @ $23; No. 2 do., $14 @ $15; Turnings, $13 @ $14; Old Steel Rails, $20 @ $21; Cast Scrap, $15 @ $16; do. Borings, $9 @ $10; Old Fish Plates, $25 @ $26. Old Car-Wheels, $17 @ $18, Philadelphia, or its equivalent.

Wrought-Iron Pipe.—Mills are all busy and are well filled up with orders, although prices, for some unknown reason, continue weak and drooping. Discounts are quoted as follows: Black Butt-Welded, 55 %; on Galvanized do., 45 %; on Black Lap-Welded, 65 %; on Galvanized do., 52½ %; on Boiler Tubes, 60 %.

Nails.—It is very difficult to find anything of interest either as regards amount of business or prices. Only a limited number of Nails are being sold, and on account of the extreme competition from outside points it is difficult to sell at a figure that pays for the handling. Lots from store are quoted at $2, with the usual discount on carload lots.

Cincinnati.

Office of *The Iron Age*, Fourth and Main Sts.
CINCINNATI, September 24, 1888.

Pig Iron.—The market for Pig Iron here preserves its strength well, the recently published statistics fortifying producers in their positions. As was surmised a week ago, official statements for the month of August show a reduction of about 42,000 tons in stocks of Coke Iron and about 9000 tons in stocks of Charcoal Iron at the furnaces, and this reduction of stocks occurs at the same time that there has been an increased production of 10,000 tons, which is equivalent to an increased consumption of upward of 50,000 to 55,000 tons during the past nine months. But the fact that increased consumption is the rule at this season deprives the showing of much force which it might otherwise have. While the local market has been strong during the week the volume of business has been less; this is in part due to the retirement of a number of furnaces from the market, but at the same time buyers have not been importunate, yet inquiries have been frequent, the pulse, temperature and respiration of the market being accurately taken by all concerned. No very large sales have been recorded and the aggregate of small transactions has been less. Among the larger sales may be noted 2600 tons Southern Car-Wheel Iron at $25, four months; 1000 tons No. 2 Southern Coke Foundry at $16.50; 600 tons do. at the same rate, and 500 tons No. 2 Southern Forge at $14.50. No. 1 Southern Forge has been sold at $15.25 @ $15.50, and about 600 tons Mottled Iron equivalent to $13.50, cash, here. The following are the approximate quotations for the local market, cash, f.o.b. Cincinnati:

Hot-Blast Foundry.

Southern Coke, No. 1	$17.50 @ $18.50
Southern Coke, No. 2	16.50 @ 17.50
Southern Coke, No. 3	15.50 @ 16.00
Ohio Soft Stone Coal, No. 1	17.00 @ 17.50
Ohio Soft Stone Coal, No. 2	15.50 @ 16.00
Mahoning and Shenango Valley	17.50 @ 18.50
Hanging Rock Charcoal, No. 1	20.50 @ 22.50
Hanging Rock Charcoal, No. 2	19.50 @ 22.00
Tennessee and Alabama Charcoal, No. 1	18.50 @ 19.50
Tennessee and Alabama Charcoal, No. 2	17.00 @ 18.00

Forge.

Strong Neutral Coke	14.75 @ 15.25
Mottled Neutral Coke	13.50 @ 14.00
No. 1. Mill Coke	15.00 @ 15.50
No. 2 Mill Coke	14.50 @ 15.00

Car-Wheel and Malleable Irons.

Southern Car-Wheel	20.00 @ 23.00
Hanging Rock, Cold Blast	22.00 @ 25.00
Lake Superior Car-Wheel and Malleable	20.50 @ 21.50

Manufactured Iron.—The volume of business has been fair during the week, some new orders of moment being booked, and a firm tone has prevailed. Common Bar Iron, 1.90¢; Charcoal Bar Iron, 2.90¢ @ 3¢; Sheet Iron, Boiled, Nos. 10 to 27, 2.50¢ @ 3.25¢; Sheet Iron, Charcoal, Nos. 15 to 25, 3½¢ @ 4½¢ ℔ lb.

Nails.—There has been a fair jobbing demand, which has been readily met at previous range of prices, but there has been some change in the discount allowed. Jobbing prices are based upon 12d @ 40d, which sell at $2.10 ℔ keg, with 10¢ rebate in carload lots, at mills. Steel Nails sell at $2.10 and Steel Wire Nails at $2.75 ℔ keg.

Old Material.—The market has apparently come to a halt. It is in a congested state, sellers having accumulated considerable stock at different points and demanding prices in excess of buyers' limits, have stopped the movement in this vicinity at least. Old Rails would probably sell at $24, while sellers are not disposed to accept even $25. Old Wheels are dull and nominally quotable at $22, spot.

Cleveland.

CLEVELAND, September 24, 1888.

Iron Ore.—Sales of Bessemer Ore are reported at an average advance of 50¢ per ton over midsummer quotations. Transportation rates to lower lake ports have crept up to $1.40 from Escanaba, $1.60 from Marquette and $1.85 from Ashland and Two Harbors. The tone of the market is certainly very firm at the advanced quotations, which are fully justified by the increased lake freights. The demand is excellent and many dealers report having declined orders that were thought to be in excess of the output of their mines. With the vessel interests steadily clamoring for higher carrying rates, mine owners have been even stronger than they would otherwise have been in their determination not to be driven into the position of having on hand, near the close of the season, large quantities of Ore already sold and obliged to be forwarded regardless of excessive freights. Scattering sales of Gogebic Bessemers have occurred during the past week at prices equivalent to $5.35 @ $5.45, f.o.b. cars Cleveland. Menominee Bessemers have sold at about $5.40 and Red Hematites at $5.25. The shipments for the season closely aggregate 3,250,000 tons, with a fair prospect of the output for 1888 reaching 4,000,000 tons.

Pig Iron.—The market is very active and the volume of business for the past week is probably quite equal to that of any preceding six days in August or September. Dealers would not, however, be surprised if business should be a little quiet for a month or six weeks. Producers of Bessemer Irons are not only well sold up, but have anticipated their output to such an extent that they will have practically nothing more to offer before the middle of November. Buyers, too, have purchased ahead of their immediate needs, and not very much is to be expected of them for a month or two. The situation is the natural result of the activity which has characterized the market since August 1st. The market

has as yet lost none of its encouraging features, and numerous sales of No. 1 Strong Foundry Bessemers, and of both Neutral and Red Short Mill Irons are reported at the 50¢ advance noted last week and at a clear advance of $1.50 over the prices prevailing a few months ago. At the beginning of the new week Gray Forge Iron seems in the best demand at $16.70 @ $17.20, Cleveland, four months. Lake Superior Charcoals are weak, but there is no weakening in prices.

Scrap Iron.—Old American Rails are weak at $25 ℔ ton, and a sale of a lot containing a few Steel Rails and much light material is reported at $22 75.

Manufactured Iron.—Bars are in good demand at $1.70. Sheets are eagerly taken at $2.90 for No. 24 and $3.10 for No. 27.

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts., CHATTANOOGA, September 24, 1888.

Much inconvenience and falling off in general business have occurred with the houses whose transactions are at points affected by the yellow fever; the embargoes that are being laid by many Southern towns are extremely annoying, not to say senseless, but frost, it is to be hoped, will soon end the trouble.

Pig Iron.—There is no falling off either in demand or prices. Inquiries are as frequent and urgent as they have been at any time during the past month or two, and no quotations are being made at prices that show any concession; $12.25 was offered for 1000 tons No. 2 Mill, spot cash, at the furnace, free from all commissions, but the offer was declined from the fact that the Iron was going into the hands of a speculator, and the producer concluded that if there was any speculation in it the furnace ought to have the benefit of it instead of the buyer. At the present time, for immediate delivery, there is more demand for good Foundry grades than there is ability of the furnaces to produce, and consequently the yards are well cleared up in this kind of Iron. There is now very little disposition on the part of producers to contract for long-time deliveries, although some furnaces are doing this, but as a general thing these transactions are not in favor. Freights now to Baltimore, Md., from this city are $3.67 ℔ long ton, but to points on the Ohio and beyond they have been advanced 15¢, to take effect October 1, making a basis of $2.40 to Cincinnati and Louisville and $2.90 from Birmingham and $3.15 from Chattanooga to St. Louis and $3.40 from Birmingham.

Louisville.

LOUISVILLE, KY., September 24, 1888.

The prices remain firm and a fair number of orders has been booked during the last week. Rates of freight from Southern furnaces advance 15¢ ℔ ton, taking effect October 1, and consumers will have to stand this, as furnaces are in shape to place all the Iron they have to offer for delivery during the balance of the year, without any concessions. It is thought that prices will advance slightly during the coming week, in sympathy with the New York market, which is undoubtedly stronger than the West, and sales have been made by Louisville houses in the East, during the past week, at prices 50¢ ℔ ton higher than can be obtained here. There is a strong demand for Old Rails and Wheels, and prices remain firm at $24 and $21. We quote as follows:

Southern Coke, No. 1 Foundry	$17.00 @ $18.00
" No. 2 "	16.00 @ 16.50
" No. 2½ "	15.50 @ 16.00
Hanging Rock Coke, No. 1 Foundry	17.25 @ 17.75
Hanging Rock Charcoal, No. 1 Foundry	21.00 @ 23.25
Southern Charcoal, No. 1 Foundry	18.00 @ 18.50
Silver Gray, different grades	14.50 @ 15.25
Southern Coke, No. 1 Mill, Neutral	14.75 @ 15.25
" No. 2 " "	13.75 @ 14.75
" No. 1 " Cold Short	14.25 @ 14.75
" Charcoal, No. 1 Mill	15.75 @ 16.50
White and Mottled, different grades	13.50 @ 13.75
Southern Car-Wheel, standard brands	23.00 @ 24.00
Southern Car-Wheel, other brands	19.25 @ 21.25
Hanging Rock, Cold Blast	22.25 @ 25.25
Hanging Rock, Warm Blast	19.25 @ 20.25

Pittsburgh.

Office of *The Iron Age*, 77 Fourth Ave., PITTSBURGH, September 25, 1888.

The market has quieted down somewhat; there is no falling off in actual business, the volume of which is possibly as large as it has been at any time yet, but the speculative feeling which obtained for a time has to a considerable extent died out, and actual legitimate business is in as good condition as it has been at any time since the improvement in July was inaugurated. There is a very fair and increasing demand for the products, but prices as yet have not got up to those of the raw material. A good many works will be closed during the first half of the present week, to give the men an opportunity to take part in the Centennial of Allegheny County. As might be expected, the people here feel very proud of the progress made by Pittsburgh and vicinity in that time. There were a great many people here from a distance, some of whom made a point to visit some of our large manufacturing establishments. Some former Pittsburghers who had not been here for a good many years were much surprised at the progress made. The growth of the Iron and Steel industries in this immediate vicinity is really wonderful, and it is not strange that the average Pittsburgher takes considerable pride in detailing the same.

Pig Iron.—Demand has fallen off, but this was to be expected, in view of many consumers having largely covered their wants during the remainder of the present year. Moreover, a large proportion of the Iron sold during the past couple of months was bought at prices considerably below those now current, and this being the case it is by no means strange that there has been a falling off in the inquiry for the raw material; and then a still more important cause for the same is that thus far it has been impossible to get the prices of of the products up to correspond with increased cost of the raw article. However, it is well to bear in mind that furnacemen are well sold up, hence there is no pressure to sell, and not in any event likely to be during the remainder of the present year. The market, therefore, while quiet, is in a good, healthy condition, and there is nothing likely to occur to disturb its present equanimity unless speculators should commence to realize, but it it is not probable that all the Iron they have would have much, if any, influence on the market, even if they were disposed to realize. This being the situation, there is every reason to believe that we shall have a fairly active and steady market during the remainder of the present year. We quote prices as follows:

Neutral Gray Forge	$15.75 @	$16.50,	cash.
All Ore Mill	16.75 @	17.25,	"
White and Mottled	16.00 @	16.00	"
No. 1 Foundry	18.00 @	18.50,	"
No. 2 Foundry	17.00 @	17.50,	"
No. 1 Charcoal Foundry	24.00 @	24.50,	"
Cold Blast Charcoal	25.00 @	27.00,	"
Bessemer Iron	18.00 @	....	"

Included in the sales were 1000 tons White Bessemer at $16.25, four months, and 1000 tons No. 1 Gray Forge at $16.50, cash, with some smaller lots, not so good Iron, down as low as $15.85, cash. There are plenty of good Irons offering at $16 @ $16.25, cash.

Muck Bar.—There is not the demand there was a few weeks ago, and, while the market is easier, there has been no quotable change in prices. Sales reported at $28.75 @ $29, cash, which may be regarded as the ruling rates.

Manufactured Iron.—There is a continued good degree of activity, but as yet prices have not got up to correspond with the enhanced cost of Pig Iron. The mills generally are pretty well employed. Those making a specialty of Skelp Iron have about all they can do. Bars are quoted at 1.80¢ @ 1.85¢; Plate, 2.10¢ @ 2.25¢; No. 24 Sheet, 2.80¢ @ 2.85¢; Skelp, Grooved, 1.80¢ @ 1.85¢; Sheared, 2¢ @ 2.10¢. There is a very good demand reported for Sheet, and the general Bar trade is very fair.

Nails.—A meeting of the Western Association took place in this city last Wednesday, which was pretty well attended. Prices were advanced; there was no change made in the card, but sales were being made away below the card, so that really there was an advance of 10¢ @ 15¢ ℔ keg. Pittsburgh manufacturers refused to sell at any time below card rates, but buyers were able to do considerably better elsewhere, and as a consequence there was very little business here. Now that all have the same price, or have agreed to stand by the card rates, there is reason to expect that Pittsburgh will get her share of the business. Moreover, even at full card rates there is but little margin for profit, and it is certain that Pittsburgh will not cut; they prefer to let their machines stand idle to running them at a loss. We continue to quote at $1.90, 60 days, 2 % off for cash, which but little more than covers the cost of the Nail Plate.

Wrought Iron Pipe.—There is a continued good demand for smaller sizes; some of the mills have about all they can do, and the prices quoted in our last are very generally adhered to. Large pipe continues dull, owing to the fact that there is but little Pipe being put down by the natural gas companies. Discounts on Black Butt-Welded Pipe, 55 %; on Galvanized do., 50 %; on Black Lap-Welded, 65 %; on Galvanized do., 55 %; 5⅛ inch casing, 40¢ ℔ foot net; 2-inch tubing, 13¢; Boiler Tubes, 65 % off, large lots.

Old Rails.—The most important sale reported was 6000 tons sold by the Erie Railroad to Pittsburgh and Youngstown consumers at $25.25 delivered at points in question; also sales of 1000 tons at $25 and 2000 tons at $25.25. Consumers hereabouts have been buying pretty freely of late, and it is evident are pretty well stocked, and the probability is that, as in the case of Pig Iron, there will be a falling off in demand. The railroads centering here have but few to sell, and the market may be reported steady at $25 @ $25.25 for American Tees.

Billets, &c.—Bessemer Steel Billets are quoted at $29 @ $29.50, cash, at seller's mill; sales 1500 tons reported, at $29.25. Nail Slabs remain unchanged at $29. Domestic Rail and Bloom Ends remain unchanged at $19; Steel Rails are quoted at $30, cash, for heavy sections.

Merchant Steel.—There is a fair business at unchanged prices. Tool Steel, 8½¢ for standard brands; Crucible Spring, 4½¢; Crucible Machinery, 5¢; Open Hearth do., 2½¢.

Old Material.—There is a continued good demand, and prices, as a rule, are steady. Sales No. 1 Wrought Scrap, $21, net ton; Car Axles, $26; Cast Scrap, $16, gross; Wrought Turnings, $14.50 @ $15, net ton; Old Wheels, $20, gross. Sales short pieces of Old Steel Rails at $18.50 @ $19, gross.

A. H. Childs, Iron and Steel broker, of Pittsburgh, has removed from No. 83 Fourth avenue to Room No. 507, in the Hamilton Building, in that city.

Detroit.

WILLIAM F. JARVIS & Co., under date of September 24, report as follows: There has been very little change in the market during the past week. Considerable business has been transacted, and no concessions have been made in any case. Prices have been very firm at the advance recently reported. The confidence that prices will be higher in the future is shown by the number of buyers that desire to purchase who are not consumers of Iron. This is further demonstrated by the action of some large consumers, who placed orders about 60 days ago for their wants during the next six or eight months, but who have purchased during the past week an additional quantity almost equal to the original purchases. We quote for the present as follows:

Lake Superior Charcoal, all numbers	$20.00 @ $20.50
Lake Superior Coke, all ore	19.75 @ 20.25
Lake Superior Coke, cinder mixed	18.50 @ 19.00
Standard Ohio Black Band	19.75 @ 20.25
Southern No. 2	17.75 @ 18.25
Southern Gray Forge	16.25 @ 16.75
Southern Silvery	17.00 @ 17.50
Jackson County (Ohio) Silvery	18.50 @ 19.00
Old Wheels	20.50 @ 21.50

New York.

Office of *The Iron Age*, 66 and 68 Duane street, NEW YORK, September 26, 1888.

American Pig.—Representatives of Southern Pig Iron producers have been watching with some solicitude the reports of the yellow fever scare in the South, and news from Birmingham particularly has been closely scanned. Until now no traces of the epidemic in that town have been reported, and the latest advices are encouraging. Any outbreak there followed by a panic would very seriously influence the Pig Iron markets of the whole country. Every day successfully passed lessens the danger, as we are approaching the first frost. Still the trade should closely scan the reports from that section for the next week or two. Our market has been quite active, the notable event being the sale by the Thomas Iron Company during the latter part of last week of Mill and Forge Irons to the aggregate of about 20,000 tons, to rolling mills, Pipe founders, Stove manufacturers, and engine and machine builders at the season prices, for delivery during the balance of year. Through these sales the output of the Thomas Iron Company must now be pretty well provided for. We hear of a purchase of 1400 tons of Southern No. 1 at $18.10, though the majority of representatives hold at $18.50 @ $19 for moderate lots. A 500-ton lot of Southern No. 2 Foundry has been offered at $16.50, tidewater. In Mill Iron we hear of a small sale of Northern Iron at a shade under $16. The Southern furnace companies have generally agreed to the following change in the grading, which some have been working under for some time past. This new grading is to go into effect on October 1:

New Grade.	Old Grade.
No. 1 Foundry	No. 2 Foundry.
No. 2 Foundry	No. 2½ Foundry.
No. 3 Foundry	No. 1 Mill.
No. 1 Soft	Open Bright.
No. 2 Soft	Close Bright.
Silver Gray	Silver Gray.
Gray Forge	No. 2 Mill.
	Mottled.
	White.

This will do away with a good deal of confusion and will be welcomed by Southern furnace managers. We quote standard brands: No. 1 Northern Foundry, which is scarce, $18 @ $19; No. 2, which is more plentiful, $17 @ $17.50, and Gray Forge, $16 @ $16.50.

Scotch Pig.—High prices are checking the demand. We quote for moderate lots: Coltness, $21.75 @ $22, nominally; Shotts, $20.50 @ $21; Langloan, $20.50 @ $20.75, and Dalmellington, $20.25 @ $20.50.

Spiegeleisen.—Some sales are reported for Western delivery at private terms. The market has advanced, and importers are now asking $27.75 @ $28 for English, steamer shipments, although no business has been done at these figures. Foreign Ferromanganese is held at $54 @ $54.50 nominally.

Plates.—An important circular has been issued by Carnegie, Phipps & Co., through their Eastern agent, H. L. Waterman, Mills Building, this city. The announcement is made that as Soft Steel Plate is taking the place of Iron for bridges, ship, tank and structural work generally they have decided to make prices for Sheared and Universal Rolled Plate of these grades as low as are quoted for Iron Plates for similar purposes. We quote Iron Tank, 2.1¢ @ 2.2¢; Shell, 2.3¢ @ 2.4¢; Steel Tank, 2.2¢ @ 2.3¢; Shell, 2.4¢ @ 2.5¢; Flange, 2.65¢ @ 2.75¢, and Fire-box, 3.5¢ @ 4¢.

Structural Iron.—The majority of manufacturers are fully employed, though current orders are for small quantities mainly. We quote Sheared Plates, 2¢ @ 2.1¢; Universal Mill Plates, 2.1¢ @ 2.2¢; Angles, 2.1¢ @ 2.15¢; Tees, 2.5¢ @ 2.6¢, and Channels and Beams, 3.3¢.

Steel Rails.—Sales during the week by Eastern and Western mills foot up to about 18,000 tons in the aggregate, the bulk of the business being done by Western mills for Western roads. Inquiries are in the market almost exclusively by Western roads for winter and spring work, aggregating about 75,000 tons, 30,000 tons thereof being for one system. A part of them, probably, are in the nature of feelers; others are from roads which usually buy early and decide promptly whenever they have entered the market. It is not likely that the Eastern mills will touch any of this business, because relatively prices in Chicago are lower at $30 there than $28, which is the usual price now at Eastern mills. The first step must therefore be that the Western mills fill their order books at least partly. Some uncertainty exists among Rail-makers as to next year's business. All of them have worked off accumulations of cheap raw material pretty well and could not now replace Ore Pig, Spiegeleisen or Coke at the same low prices, although that point has not been seriously tested except in a few isolated cases. These circumstances would point to higher prices. On the other hand, many manufacturers are usually willing in order to secure a start on their order books to accept early contracts at close figures. An error crept into our report last week in regard to sales thus far for 1889. Up to September 1st, according to the official report the sales had aggregated 26,430 gross tons. We quote $28 @ $28,50, with rumors of sales for winter delivery at a shade under.

Blooms and Billets—Very little is doing in Foreign which are quoted $30.50 @ $31 for sailer shipment, and $31.50 @ $31.75 for steamer shipment.

Wire Rods.—The market is dull at $39.50 @ $40 for small lots and no demand for large quantities.

Old Rails.—The position remains strong, the stock here having now dwindled down to less than 5000 tons, held by three strong parties. We note a sale of 2000 tons of T's from an American road at $26.25, Pittsburgh, and of 6000 sold by an Eastern road at $25.50, delivered at Ohio mills. A correspondent in Louisville writes of a sale of 1500 tons at $24, spot cash, f.o.b. cars Cincinnati or East St. Louis, as the buyers may elect. The majority of the Eastern roads have now disposed of their holdings, and what little there is here now could be swept away by one buyer. Holders ask $25 for T's and $26 for Double Heads. C.i.f. prices, by private cables, make foreign T's 70/ and Double Heads 75/, which would be equivalent to the figures quoted.

Old Steel Rails.—We note a sale of 1200 tons of Old Steel Rails delivered at Ohio points at $20.

Scrap.—The market is quiet, holders asking $21 for No. 1 from yard. We note a sale of 300 tons R.R. at $23.50 delivered at Cleveland, and 100 tons of Axles at $28.

Swedish Iron.—The market is quiet. We quote Rough Bars $56. Store assortment, $60 @ $61, and Wire Rods $53.50 @ $54.

Fastenings.—Manufacturers are asking $2.25, delivered, for Spikes. Dilworth, Porter & Co., are expected to resume on October 15th. Angle Bars are 2.05¢ @ 2.10¢.

Axles.—We quote Scrap Axles 2.15¢ @ 2.25¢, and Muck and Steel Axles 2.4¢ @ 2 5¢.

Financial.

While complaints come from some quarters that the fall trade is backward and hardly equal to expectations, there has been a general agreement that the business situation is satisfactory. Within the last few days, however, the Southern scourge has assumed a more threatening appearance, completely suspending traffic on important thoroughfares, until now it is reported New Orleans is not accessible by interior routes with any degree of certainty, except by way of Montgomery in Alabama, and even that route is threatened. Business in consequence is prostrated through a large section of country. It is inevitable therefore that traffic for a month or two must be seriously interrupted, until frost shall check the progress of disease. Several Northern railroads already refuse to receive freights from points below Charleston, and a telegram from Atlanta says it is probable the Memphis and New Orleans trains will be discontinued. Ex-President Norton, of the Louisville and Nashville Railroad Company, expresses the opinion that with the return of frost matters will soon resume their normal condition, and that Southern roads will suffer no material loss through the epidemic. Turning to the more cheerful aspects of the situation the important fact is announced by authority that an unprecedented corn crop is secured, equal to the enormous aggregate of 2,015,000,000 bushels; an increase of 559,000,000 bushels, or over 38 %, compared with 1887, and for the seven surplus States a gain of 520,000,000 bushels, or 66 %, the latter a gain of 60,000,000 bushels for the same group of States compared with the previous largest production in 1885. After a temporary decline of prices for wheat, in the absence of an export demand, wheat in Chicago touched the dollar mark, and millers at Duluth on Monday marked up wheat 4¢ ₱ bushel, New York following with an advance. Wheat in this market again jumped on Tuesday, cash wheat or what is termed No. 2 Red selling at $1.02, and flour again advanced, the best Minnesota selling at $6.25¢ @ $6.40¢. Corn was weak. Provisions were lower on yellow fever reports. Lard was excessively dull. Oil advanced sharply on buying orders. Cotton quiet at steady prices for spot stock. Advices from the Liverpool Exchange were that cotton-sheeted bales would be accepted as good delivery. Grocery jobbers reported that the early fall trade was the largest for some years. Coffee is disturbed by speculation. Sugars are firmly held.

The Stock Exchange market was subject to varying phases, following the extraordin-

ary depression in St. Paul and reports that English shareholders were attempting to control the road. On Thursday it was announced that the Interstate Commerce Commission had decided that it cannot order the Burlington and Northern to advance its rates, even though they are unremunerative. The Chicago, St. Paul and Kansas City Road is also prohibited from further violating the fourth section of the Interstate law. On Friday a break occured in Louisville and Nashville owing to free selling on the reports from the South of the spread of yellow fever. On Saturday there was more liberal selling of the grangers and the coal shares, but in the late trade the market partially recovered. On Monday there was again a lower tendency. On Tuesday the market was dull, closing firm.

United States bonds are quoted as follows:

U. S. 4½s, 1891, registered	107⅝
U. S. 4½s, 1891, coupon	107⅝
U. S. 4s, 1907, registered	128⅝
U. S. 4s, 1907, coupon	129⅝
U. S. currency 6s	121

The weekly bank statement showed a loss of nearly $500,000 in surplus reserve, which now stands at $11,943,625, against $5,816,725 at the corresponding time last year, and $9,079,875 in the second week of September, 1886. In loans there was a contraction of $492,200. Specie showed an increase of $826,400 and legal tenders decreased $1,626,100, reflecting the continued movement of currency to interior points. Deposits decreased $1,279,400. The large purchases of bonds by the Treasurer of late supplied the banks with all needed funds. The total amount of bonds purchased to date under the circular of April 17 is $53,266,800, of which $35,400,850 are 4s, and $17,865,950 are 4½ per cents. The cost of the 4s was $45,315,268, and of the 4½s $19,183,895, making the total cost $64,499,163. Notwithstanding these purchases there is still an excess in the receipts over the expenditures since the 1st inst. of $15,000,000. Treasury purchases, together with heavy interest disbursments October 1 and Congressional appropriations, will go far toward providing money to meet the usual autumn demand. Money on call averages about 2 %. The rates on time loans, most of which were made by trust companies and out-of-town institutions, were 4½ to 5½ % for four to six months. Commercial paper was in abundant supply, and the demand was light. Rates were for 60 to 90 days' indorsed bills receivable 5½ to 6 %, for first-class four months' commission house names 5½ to 6½ % and longer dates 6 @ 7½ %.

Sterling exchange was lower; actual rates, $4.84 @ $4.88. With free cotton exports later in the season, the receipt of gold from Europe is not improbable.

The clearings of 38 cities for the week ending September 22 were $1,113,797,755, against $991,174,669 last year, an increase of 12.4 %. Outside of New York the gain was 5.9 %. New York increased 13.5; Boston, 2.3; Philadelphia, 4.3; Chicago, 13.9; St. Louis, 19.8; Kansas City, 12.5; Louisville, 24.7; Omaha, 13; Minneapolis, 7.7; Denver, 36.1, and Duluth, 36.6 %. Cincinnati decreased 3.2; Milwaukee, 3.9; St. Paul, 7.7; Memphis, 36.9; Wichita, 24.4, and Norfolk, 23.8 %.

The gross earnings of 81 railroads from January 1 to July 31 show an increase of $10,225,660, or 4 %. The weekly reports for September indicate an increase varying from 2 to 3 %.

The exports of specie from this port during the week were $535,000, and the imports $150,000. Since January 1 the amounts, respectively, are $28,225,000 and $6,589,000.

The imports of merchandise at this port during the week were valued at $8,271,000, of which $2,000,000 represents dry goods. The total since January 1 is $343,646,000, as compared with $345,115,000 for the same time last year and $318,872,000 in 1886. Exports for the week were $6,773,000; total since January 1 $211,940,000 as compared with $225,795,000, for the same time last year.

The new bank organized by the hat trade in New York with a capital of $250,000 is named the Empire State Bank. James W. Conrow was elected president.

The Philadelphia mint during the fiscal year ended June 30 struck off coinage pieces in numbers exceeding 88,000,000 and in value $25,982,957.52, and the operations of the establishment yielded a profit of $5,236,000 above the working expenses and exclusive of the profit on silver bullion purchased.

Imports.

The imports of Iron and Steel, Hardware, &c., at this port from September 17 to September 23, inclusive, and from January 1 to September 23, inclusive, were as follows:

Iron and Steel.

	Sept. 17 to Sept. 23. Tons.	Jan. 1 to Sept. 23. Tons.
Iron Ore: Bowering & A.	1,000	1,000
Pig Iron: James Williamson & Co.	100	4,000
G. W. Stetson & Co.	400	12,450
Crocker Bros	200	8,273
N. S. Bartlett	100	4,300
R. Crooks & Co.	50	50
Richard Irving & Co.	50	50
Spiegeleisen: Naylor & Co.	800	8,019
Crocker Bros.	345	4,252
J. A. Jansen	200	10,552
Steel: Pierson & Co.	28	75
R. H. Wolff & Co.	65	432
F. S. Pilditch	13	340
W. F. Wagner	11	1,102
J. S. Leng's Son & Co	10	18
M. Cohn & Co	9	199
Chas. Hugill	5	220½
Newton & Shipman	4	125
C. F. Boker	4	182½
J. G. Wilson	3	10
A. Milne & Co.	1	1,012
Steel Rods: Dana & Co.	640	3,190
Cary & Moen	25	708
Steel Blooms: Dana & Co.	900	1,025
Steel Crop Ends; W. H. Walbaum	336	336
Steel Sheets: Henry Whittemore & Co.	30	36
Pierson & Co.	20	809
A. R. Whitney & Co.	10	10
Steel Hoops: Jas. Lee & Co.	50	95
Steel Bars: A. Milne & Co	15	257
Steel Forgings: Thos. Prosser & Son	50	3,548½
Steel Plate Cuttings: Naylor & Co.	48	48
Iron: C. S. Mersick & Co.	29	29
Ferromanganese: C. L. Perkins	1,000	4,700
Charcoal Iron: Naylor & Co.	390	440
Muller, Schall & Co.	12	140
Sheet Iron: T. B. Coddington & Co.	40	1,118
Rivet Rods: J. Abbott & Co.	150	3,987
J. A. Roebling's Sons	51	837
Iron Beams: Post, Martin & Co.	17	17
Swede Iron: A. Milne & Co.	85	338
Bacon & Co.	58	58
H. N. Holt	10	10
Swedish Rods: Muller, Schall & Co.	21	21
Iron Channel Beams: J. G. Wilson	4	4
Cotton Ties: Naylor & Co	378	4,937
Wheelock & B.	200	450
J. S. Leng's Son & Co.	50	335

Tin Plates.

	Boxes.	Boxes.
Phelps, Dodge & Co.	4,822	397,824
Dickerson, Van Dusen & Co.	4,367	200,287
T. B. Coddington & Co.	3,635	129,113
Pratt Mfg. Co.	4,253	132,985
R. Crooks & Co.	1,384	53,618
A. A. Thomsen & Co.	1,172	99,449
Merchant & Co.	675	17,397
Bruce & Cook	669	76,061
G. B. Morewood & Co.	500	36,189
Corbiere, Fellows & Co.	500	6,858
Jas. Byrne & Son	363	28,552
N. L. Cort & Co.	308	79,284
N. H. Fairbanks	264	264
E. S. Wheeler & Co.	110	5,710

Metals.

	Pounds.	Pounds.
Tin: Naylor & Co.	235,147	2,192,366
American Metal Company	67,200	1,203,625
A. A. Thomsen & Co.	22,419	144,477
Jas. E. Pope, Jr.	22,339	214,947
R. Crooks & Co.	8,420	414,502
Nickel: McCoy & Sanders	5,150	142,760
Old Brass: J. M. Ceballos & Co.	13,250	13,250

Irons and Metals Warehoused from September 17 to September 23, Inclusive:

	Tons.
Charcoal Iron: N. Lilienberg	200

Hardware, Machinery, &c.

Bernard Geo., Ironwork, cs., 7
Boker, Hermann & Co., Mdse, cs., 5; Arms, cs., 38
Clark Thread Company, Mach'y, cs., 70
Crabb, Wm., & Co., Mach'y, cs., 10
Curley Bros., cs., 2
Douglas, W. B., Mach'y, cs., 3
Field, Alfred & Co., Mdse., cs., 90; Gun Caps, cs., 22
Folsom, H. & D., Arms, cs., 24
Gurney, F. B., Mdse., cs., 4
Graef Cutlery Company, Cutlery, cs., 6
Keydel, H. & Co., Arms, cs., 30
Lau, J. H. & Co., Arms, cs., 15
Newton & Shipman, Files, cks., 2
Pim, Forwood & Co., Boiler Tubes, 200
Schoverling, A., Arms, cs., 36
Shoverling, Daly & Gales, Arms., cs., 41
Strauss, Blumenthall & Co., Hdw., cse., 1
Tryon, E. K. & Co., Mdse., cs., 18
Wiebusch & Hilger, Lim., Mdse., cs., 47
Williams & Rankine, Hdw., cse., 1
Order: Rivets, cs., 12; Shaft, 1; Propeller, 1

Exports of Metals.

	September 17 to Sept. 23. Pounds.	Jan. 1. to Sept. 23. Pounds.
Copper: J. Abbott & Co.	225,000	10,895,619
Lewisohn Bros.	.....	3,929,022
F. A. Lomal	.....	2,581,293
American Metal Company	88,750	5,349,534
G. H. Nichols	.....	223,939
J. Bruce Ismay	.....	112,000
S. Mendel	.....	560,000
Ledoux & Co.	.....	110,276
Muller, Schall & Co.	.....	430,000
Copper Queen Con. M. Company	.....	224,034
J. Kennedy, Tod & Co.	.....	112,026
H. Becker & Co.	.....	1,250
Orford C. & S. Rfg. Company	.....	449,881
Robt. M. Thompson	.....	125,000
Thos. J. Pope, Sons & Co.	35,000	1,132,130
J. Parsons & Co.	213,750	420,000
Naylor & Co.	.....	280,000
Bridgeport Copper Company	.....	112,000
C. Herold	.....	250,000
Phelps Bros.	.....	6,250
R. W. Jones	.....	189,984
Ladenburg, Thalmann & Co.	.....	229,371
W. H. Crossman & Bro.	.....	4,000
R. Crooks & Co.	.....	1,000
Copper Matte: Williams & Terhune	.....	34,382,598
Lewisohn Bros.	.....	3,021,610
American Metal Company	179,200	2,416,073
J. Abbott & Co.	.....	295,000
C. Ledoux & Co.	.....	485,800
F. W. J. Hurst	.....	184,288
G. H. Nichols	.....	722,777
H. T. Nichols & Co.	.....	180,996
Kunhardt & Co.	.....	41,652
	Tons.	Tons.
Pig Iron: P. Wright & Sons	100	380

Coal Market.

The Anthracite Coal market is easier, and it is not probable the heavy business done of late will be continued in October. The large operators already show some disposition to curtail production, the output from the three mining districts having dropped during the week ended September 22 to 869,136 tons, which is a decrease of 66,000 compared with the previous week, Wyoming alone falling off nearly 50,000 tons. Nevertheless, the amount of Coal passing into consumers' hands is extraordinary as the companies as a rule have no large accumulations. Compared with the corresponding week last year, the output now reported is 256,000 tons larger, and since January 1 the excess is upward of 2,000,000 tons. The comparison by weeks since the climax of the season is as follows:

Week ended August 18	920,922
Week ended August 25	832,058
Week ended September 1	844,665
Week ended September 8	881,802
Week ended September 15	935,523
Week ended September 22	869,136

Broken Coal is accumulating, and the smallest Steam sizes are in excess, but for sizes most in demand prices are said to be firmly held. Quotations are as follows:

	Broken.	Egg.	Stove.	C'nut.
Hard white ash	$4.15	$4.40	$4.65	$4.55
Free white ash	3.95	4.30	4.65	4.55

Pea is quoted $2.75, but can be bought much lower, and fancy grades range about $4.50 @ $5. Lehigh, f.o.b. at loading ports: Lump, $4.50; Broken, $4 25; Egg and Stove, $4.60; Chestnut, $4.70.

The official Coal figures for August show a production of 4,097,009 tons, and 898,000 tons increase over August, 1887. This is the heaviest August output known, and, notwithstanding the great produc-

tion, the stock of Coal at tide decreased 307,000 tons during the month, showing that the market absorbed about 4,405,000 tons.

Bituminous Coal is being delivered freely on contracts, and business is done on the pool basis of $3.50, alongside. Cumberland reports 70,000 tons for the week, and Clearfield 61,863 tons, which is an increase of 15,000 in shipments from these sources, compared with the same time last year.

Metal Market.

Copper.—At the time of our last report spot Chili Bars stood £95 in London, giving way to £94 the next day, but recovering to £100 yesterday, since when there is no change. Futures meanwhile temporarily gave way from £79 to £78. 15/, but are now £79 once more. Best Selected has been £80. 10/. Good merchantable brands improved from £77. 2/6 to £78. 5/ to-day. Total sales 1600 tons. Here very little has transpired. Consumers that may stand in need of Copper are supplied by the syndicate at 16½¢, while bears, to cover outstanding futures, have to pay 17½¢, which is also the figure for December delivery. There is some agitation in and out of Congress to put Ingot Copper on the free list. Whether anything will be done in that direction seems to us doubtful. The total output of ten Lake mines is given as under for the first eight months :

	1888. Tons.	1887. Tons.
Calumet and Hecla	19,313	20,688
Tamarack	5,001	2,737
Quincy	2,630	1,821
Atlantic	1,850	1,634
Osceola	1,667	1,327
Franklin	1,463	1,607
Huron	949	487
Central	723	765
Copper Falls	487	360
Kearsage	72	...
Totals	34,155	31,426

The export of domestic Copper during the first seven months has been 22,740,924 lb, against same time last year, 8,247,368. The London *Economist*, in its last issue, prints an article which we reproduce in full:

THE PROFITS OF THE FRENCH SYNDICATE.—A correspondent, who writes with an intimate knowledge of the Copper market, has favored us with the subjoined estimate of the financial results, to the 1st inst., of the operations of the French syndicate. He thinks "they will prove rather a revelation to the public, who imagine that the profits of the syndicate are already very large." His calculation is:

Estimated Quantity of English and Foreign Copper Held by the French Syndicate.

	Tons.	Tons.
On September 1 (Chili Bars)	50,000	
(other Copper)	50,000	
		100,000
On January 1		35,000
Increase in stock in eight months		65,000

Total Import of Copper into England and France, Including Pyrites.

	Tons.	Tons.
January 1 to September 1		95,000
Gone into consumption		30,000
Estimated quantity of Copper delivered by other holders than the syndicate	10,000	
Sold by the syndicate	20,000	
		30,000

Cost of 100,000 Tons Copper held on September 1.

	Per ton.
50,000 tons Chili Bars, at	£71
25,000 tons taken over from Société des Métaux, January 1, at	64
25,000 tons since purchased, at average price of	78
50,000 tons other copper, at contract price of 13/ per unit	£70 for best select.
Average price	77 for best select, 1st Jan. to 1st Sep.
Profit	£7

No Chili bars sold during this period to consumers.

Profit on 20,000 tons sold by the syndicate at £7 per ton	140,000
Interest on estimated average quantity held by syndicate during eight months—viz., 70,000 tons at £70 per ton, or £4,900,000 at 4 per cent. per annum for eight months	130,000
Present interest per annum on 100,000 tons, at £70 per ton, or £7,000,000, at 4 per cent. per annum	280,000

To this must be added brokerages, bank commission, rents, charges, &c.

In this connection reference may be made to a statement in the *Journal des Mines*, to the effect that a new contract has been entered into between the syndicate and Copper producers, to take effect on the expiry of the current three years' agreement. The terms of this new contract are thus set forth: "According to the arrangements at present in force the syndicate takes the production of the mines at a minimum of £62. 10/ ℔ ton in the case of the Rio Tinto, of £64 for the Calumet and Hecla, of £65 for the Mason and Barry, and of £70 for the Tharsis and the Cape Copper Companies. Further, the syndicate pays the cost of storage, insurance, &c., and after receiving £5 ℔ ton on account of its services shares all excess profits with the companies. According to the new combination the syndicate binds itself to take all the Copper produced by all the companies, at a uniform price of about £72. 10/ ℔ ton. It further abandons its claim for £5 ℔ ton in excess of the minimum price, and shares equally with the companies in the profits remaining after all expenses have been paid." It would thus appear that the syndicate in their efforts to maintain their position have been compelled to assume much heavier obligations than before.

Rio Tinto shares improved, at Paris, 51¼ francs, there being quite a revival in Copper-mining share speculation over there.

Tin.—The fluctuations in the London market have been comparatively unimportant. From £103. 10/, spot, the price improved temporarily to £103. 17/, and is now £103.15, after touching £103. 10/ yesterday. Futures gave way from £104 to £102. 15/ and are to-day £103. Jobbers have been getting 23¼¢, and, in a speculative way, the price has ruled at 23.25¢ September, 23.20¢ @ 23.40¢ October and 23¢ November, but trifling lots changing hands, the general feeling being one of apathy. The Banca sale in Holland came off at 63 guilders per 50 piculs. During the first seven months there were shipped from the Straits Settlements to the United States 16,520 piculs of Tin, against the following amounts in preceding years: 1887, 46,858; 1886, 40,706; 1885, 16,471; 1884, 37,408, and 1883, 67,119; the import into the United States was simultaneously 19,386,874 lb, against 16,524,743 in 1887, while the re-export was 113,614 and 102,484 lb respectively. At the Metal Exchange 10 tons October Tin brought 23.45¢ to-day. *Tin Plates.*—There has been a fair demand for Plates, both spot and futures, although there is not much inducement now to buy the latter, as the present price approximates very closely to spot stocks. The advances noted in our last still hold. Liverpool is firm at 14/ for Cokes, makers being well booked for two months ahead. The import into the United States during the first seven months has been 388,521,775 lb, against 377,523,392 lb same time last year, while the re-export has respectively been 649,896 and 972,911. We quote at the close, large lnes, ℔ box: Siemens-Martin Steel, Charcoal finish, $5.25 @ $5.75; Coke finish, $4.75; Ternes, $4.30 @ $4.40; Bessemer Cokes, $4.65, and Wasters, $4.30.

Lead.—There changed hands on the Metal Exchange since our last report, altogether, 212 tons of Lead at 4.95¢ @ 5¢, both September and October. Consumers now and then buy a small lot and pay 5¢, which is the price to-day; yesterday they paid 5.05¢ for 50 tons of an extra brand. At Chicago and St. Louis the price has risen from 4.80¢ to 4.90¢. In London Soft Spanish improved from £14.7/6 to £14.12/6, while English Pig rules at £14.17/6.

Spelter—The demand here has been moderate at 5.10¢ @ 5.15¢ for near delivery and October, but Silesian, now worth £19 in London, cannot be had for less than 5.90¢.

Antimony.—Is quite strong at 12¾¢ @ 13¢ for Cookson, and 10¼¢ Hallett, the stock being light, and the demand good. London remains steady at £39 for the latter.

New York Metal Exchange.

The following sales are reported:

THURSDAY, September 20.

25,000 lbs. Lake Copper, November	17.50¢
116 tons Lead, October	5.00¢

FRIDAY, September 21.

50,000 lbs. Lake Copper, January	17.55¢
25,000 lb Lake Copper, January	17.50¢

SATURDAY, September 22.

10 tons Tin, October	23.20¢
32 tons Lead, September	4.95¢
16 tons Lead, October	4.97½¢

MONDAY, September 24.

10 tons Tin, November	23.00¢

TUESDAY, September 25.

25,000 lb Copper, December	17.50¢
48 tons Lead, October	5.00¢

WEDNESDAY, September 26.

10 tons Tin, October	23.45¢
10 tons Tin, October	23.40¢
16 tons Lead, October	5.02½¢

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, Sept. 26, 1888.

There have been no important developments in the market for Copper or Block Tin. Both commodities are, apparently, in practically the same position that they were a week ago, and, apart from a sharp rise on Chili Bar prompts, due mainly to purchases for cornering "short" sales, the fluctuations of prices have been unimportant. The local stock of Tin is very moderate, and the available supply afloat is small as well. The opportunity is thus afforded for running prices up prior to the arrival of fresh supplies from the Straits, but as yet evidences are wanting of any contemplated movement in that direction. Speculation in Copper has been spiritless and consumers' purchases small, with outside brands substituted as far as practicable for Chili Bars.

The demand for Tin Plate, particularly from the American market, is checked more or less by the continued upward tendency of prices for all varieties. Makers are, however, so well supplied with orders that they accept new business only at their own prices. The report has circulation that prominent parties are negotiating for the erection of no less than four new works of considerable capacity.

Nearly all branches of the Steel trade continue active. Shipbuilding sorts and Rails figure most prominently, large orders having been placed the past week in both branches. Prices are very firm all through.

The Pig Iron market has displayed scarcely the degree of buoyancy that prevailed the preceding fortnight. Still, the amount of stock taken up by consumers and for export has been considerable and prices show scarcely any reaction from the highest point, except in the instance of warrants, which are a fraction off.

Scotch Pig.—There has been a fairly active trade in makers' Iron, and the market retains a firm tone :

No. 1 Coltness, f.o.b. Glasgow	51/
No. 1 Summerlee, " "	52/
No. 1 Gartsherrie, " "	48/6

No. 1 Langloan,	"	"	50/3
No. 1 Carnbroe,	"	"	44/
No. 1 Shotts,	"	at Leith	49/
No. 1 Glengarnock,	"	Ardrossan	47/
No. 1 Dalmellington,	"	"	43/6
No. 1 Eglinton,	"	"	42/6

Steamer freights, Glasgow to New York, 10/ Liverpool to New York, 10/.

Cleveland Pig.—Business in this line not so large, but still of good total and at full prices. No. 1 Middlesboro', G.M.B., 37/6; No. 3 do., 35/.

Bessemer Pig.—The demand has continued brisk, and values remain firm. West Coast brands, mixed numbers, 45/9 @ 46/, f.o.b. shipping point.

Spiegeleisen.—Sellers are very firm and report a good demand. English 20 % quoted 77/6, f.o.b. N. W. England shipping point.

Steel Rails.—The market continues strong and active. Standard sections quoted at £4.1/3 @ £4. 2/6, f.o.b. at N. W. England shipping point.

Steel Blooms.—Demand is good and the market very firm. We quote £4 for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—A fairly active business reported, with prices very firm. Bessemer, 2½ x 2½ inch, £4. 1/3, f.o.b. at N. W. England shipping point.

Steel Wire Rods.—Demand somewhat better, but prices without change. Mild Steel No. 6 quoted at £5. 18/6 and No. 5 at £5. 17/, f.o.b. at N. W. England shipping point.

Steel Slabs.—A fair business passing, at firm prices. Bessemer, £4, f.o.b. at N. W. England shipping point.

Old Rails.—The market remains very firm, with demand fair. Tees quoted at £2. 17/6, and Double Heads £3, f.o.b.

Scrap Iron.—A moderate business, but prices firm. Heavy Wrought quoted at £2. 7/6 @ £2. 10/, f.o.b.

Crop Ends.—Demand runs fair and prices remain firm. Bessemer quoted £2. 7/6 @ £2. 10/, f.o.b.

Manufactured Iron.—Business in all branches is still brisk, and prices are strong. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Ord. Marked Bars	....			@	7	12	6
" Common "	....			@	5	0	0
" Bl'k Sheet, singles	....			@	7	0	0
'Velsh Bars (f.o.b. Wales)	....			@	4	17	6

Tin Plate.—There is still a good demand, but the high prices asked check business. We quote, f.o.b. Liverpool:

IC Charcoal, Allaway grade.....15/3 @ 15/9
IC Bessemer steel, Coke finish.. ..... 13/9 @ 14/
IC Siemens " " " .. .. ..14/ @ 14/3
IC Coke, B. V. grade.....13/6 @ 13/9
Charcoal Terne, Dean grade.....13/ @ 13/6

Tin.—The dealings moderate and prices irregular. Straits quoted at £103. 10/, spot, and £103 @ £103. 5/ for three months' futures.

Copper.—There is no material change in the condition of the market. Chili Bars, £95 @ £100, spot, and £78. 10/ @ £79, hree months' futures. Best Selected, £79.

Lead.—The market strong and fairly active. Soft Spanish, £14. 10/ @ £14. 12/6.

Spelter.—Transactions only fair, but prices firm. Silesian, ordinary, £18. 15/ @ £19.

Mr. J. F. Robinson, of the iron brokerage firm of Robinson & Orr, has returned from a brief trip to Europe. Mr. Orr made the trip in the summer of 1887.

Foreign Markets.

EQUIVALENTS

	Cents.
Franc, Peseta or Lira	19.3
Florin (Netherlands)	40.2
Florin (Austria)	35.9
Milreis (Portugal)	$1.08.
Milreis (Brazil)	54.6
Mark (Germany)	23.8
	Pounds.
Kilogram	220.5
Picul	134.

BRAZIL.

PARA, September 21, 1888.—*India Rubber.*—In response to the advance in Fine at Liverpool to 35d, the market here exhibits great strength. The amount shipped to New York so far this month does not exceed 240 tons, by two steamers.—*Per cable direct.*

CHILI.

VALPARAISO, July 20, 1888.—*Copper.*—There has been some activity in three months' futures, 11,600 quintals being taken at $29.45 @ $29.60 ℔ quintal, which equals £75. 5/11 ℔ ton to England, with 27/6 steam freight. *Nitrate.*—In spite of the decline in Europe and America, makers have remained firm, getting $2.70 for 95 % on the spot and $2.75 @ $2.77½ futures, which is above foreign parity. Sales aggregate 227,000 quintals; $2.70 equals 8/3¾ in England with 28/9 freight. The June shipments amounted to 794,534 quintals.

Shipments During the First Six Months:

	1888. Quintals.	1887. Quintals.	1886. Quintals.
To Northern Europe	4,930,680	4,031,205	2,547,518
To the Mediterranean	103,334	156,538	92,312
To the United States on the Atlantic	826,268	976,923	944,264
To the United States on the Pacific	90,938	142,296	118,069
Totals	5,951,220	5,306,962	3,702,163

The fortnight's charters have been 29,200 tons for Europe. *Coal.*—The last two days Coal on the spot, has dropped from 56/ for New Castle to 46/. Afloats are also lower, May sail being quoted 40/, and June, 37/; Australian July sail, 37/. *Exchange*, 90 days' bank bills, 26d. —*Weber & Co.*

EAST INDIES.

SINGAPORE, August 3, 1888.—*Tin*—Receded during the week to $33.50 ℔ picul, but subsequently recovered to $34.50, in order to close at $34.25. During the first seven months there have been shipped to England 94,256 piculs, against 32,401 during the corresponding period of last year, and 33,917 in 1886; to the Continent, respectively, 9129, 18,880 and 15,691, and to the United States, 15,907, against 34,654 and 22,695. *Gum Damar* has sold in a small way at $14 ℔ picul Siam, and $21 fair Palembang. *Gutta Percha* is scarce, and wanted at a slight improvement. We quote Prime, $90 @ $110; Medium, $50 @ $75, and White, $17 @ $40 ℔ picul. *Exchange* on London, four months' bank, 3/0¾.—*Gilfillan, Wood & Co.*

SINGAPORE, September 19, 1888.—*Tin.*—During the first half of the month there have been shipped from the Straits Settlements to the United States 400 tons, against same time last year, 200; since January 1, 1850, against 3750; to England, September 1 to 15, 800, against 400; January 1 to September 15, 13,200, against 9200.—*Gilfillan, Wood & Co., per cable to Charles Nordhaus, 89 Water street, New York.*

MANILA, September 17, 1888.—*Hemp.*—Our market has been quiet at $9.87½, against same date last year $10, equaling ℔ ton, cost and freight, £32. 17/6, against £35. 17/3. Since our last cable there have been no clearances for the United States; since January they amount to 125,000 bales, against 150,000 last year, and there are still loading 50,000, against 50,000 in 1887. Clearances for England since January 1 aggregate 246,000 bales, against 156,000 in 1887; there remain loading 8000, against none; cleared for all other ports 53,000, against 30,000; receipts at all ports since last cable, 12,000, against 10,000; ditto. since January 1, 439,000 bales, against 354,000 last year, and 289,000 in 1886. *Freight*, $6, against $5.50. *Exchange*, 3/5¼, against 3/9.—*Ker & Co. to Charles Nordhaus, New York, per cable*

ITALY.

GENOA.—September 12, 1888.—*Hardware.*—The import of Hardware and Brass Goods into Italy is chiefly, nay, almost exclusively, from Germany. *Agricultural Machinery and Implements.*—We import from England owing to the credit system which has been introduced in this branch, enabling the landed proprietor to pay for the machines in installments spread over three years. *Machinery for Manufacturing Purposes*—We receive from France, because it combines good qualities with cheapness. *Smaller Machines*—Germany supplies, because they are cheap on the one hand, and they can be sold on credit on the other. *Sewing Machines*—We import from Vienna. In *Fire Arms*—Belgium, Germany, Austria and France all compete for the Italian trade. Belgium sells, however, by far the bulk, owing to good quality combined with cheapness.—*La Patria.*

HOLLAND.

ROTTERDAM, September 12, 1888.—*Tin.*—The Tin movement in Holland in August has been as follows:

	Banca. 1888. July 31.	1888. Aug. 31.	1887. Aug. 31.
Stock on warrants in Company's hands, slabs	31,854	20,108	15,871
Billiton. Stock here and in Amsterdam	14,643	13,468	14,333
Totals	46,497	33,576	30,204
Deliveries of Banca tin	8,600	11,746	15,125
Deliveries of Billiton tin	10,370	8,375	9,550
Totals	18,970	20,121	24,675
Deliveries of Banca since January 1.	80,846	92,592	96,601
Deliveries of Billiton since Jan. 1.	50,811	59,186	65,537
Banca afloat	4,000	4,000	2,900
Banca in comp'y's hands for coming sales	118,455	126,922	73,299
Billiton afloat	47,200	46,000	46,975
Price of Banca	£55	£58¾	£62½
Price of Billiton	54	57½	62½

Since the beginning of the month Banca has advanced to 63 for spot and September sale, and Billiton to 61.50 guilders.—*Koch & Vlierboom.*

GERMANY.

HAMBURG, September 15, 1888.—*Iron.*—The Rhenish-Westphalian Iron market has, on the whole, been dull and unaltered during the week. Spiegel is quoted at 53 marks ℔ ton for 10 % @ 12 % Manganese. It is stated there is a good demand in England for American account for high grade Spiegel and it is hoped that American purchases may also increase in Westphalia. Forge Pig has been firmer at Siegen and sales to the close of the year are reported. Bessemer is neglected; Thomas in request. A larger output of Foundry Pig has been absorbed without difficulty. English Bessemer is bringing 45. Finished Iron sells tolerably well for domestic consumption, but the export trade is still slack therein; this is a weak point. Structural continues doing very well. The activity in Boiler Plates is as great as ever; the price of 170 marks for 5.5 mm. is currently paid, and 150 for Tank Plates. Thin Sheets are looking up. Machine shops, foundries and car works are all busily and remuneratively engaged to the extent of their capacity. The International Steel-Rail syndicate is in a fair way of resuscitation. During the first seven months Germany shipped 71,331 tons of Steel Rails, against 98,900 last year, and England, 597,429, against 556,915. The chief shipments made from both countries were distributed as follows:

	From Germany. 1888. tons.	1887. tons.	From England. 1888. tons.	1887. tons.
To Russia	74	52	3,017	8,548
To Scandinavia	886	1,184	13,075	20,677
To Spain	264	608	8,383	5,107
To Italy	845	5,406	2,017	12,015
To Japan	...	1,030	37,562	7,725
To the United States	2,270	10,396	39,723	92,941
To Mexico	....	.....	11,049	4,811
To the Argentine Republic	4,715	1,125	140,088	37,555
To British India	....	...	183,499	187,244
To Australia	5,129	9,647	48,677	65,366
Totals	14,183	29,448	487,090	441,989

Germany's Steel Rail exportation has, according to the foregoing figures, dwindled down to a comparatively unimportant amount. It is desirable, therefore, to have the syndicate renewed. After this question is solved the one of the price which the Prussian Government railroads are to pay in the future for Steel Rails will have to be considered. *Metals.*—It is asserted that the Spanish Lead mines are ready to join the proposed European convention of producers, the plans for which were laid down at Paris, on June 29 last, but this piece of news still lacks confirmation. Lead is rising and all Metals are firm.—*Borsenhalle.*

Hardware.

Trade continues in fair volume and without special features of importance. The effect of the yellow fever is being felt in Southern trade, and the result will doubtless be a temporary curtailment of business in that section. Prices remain unchanged except in a few cases.

Barb Wire.

The New York Barb-Wire market has the same general features as were indicated in our last report, but instead of the nominal prices then prevailing lower quotations are now openly made. The understanding between the Eastern manufacturers, by which prices were so satisfactorily maintained last season, having terminated, the manufacturers are now in an open market, and this fact will probably have its influence in the direction of lower prices than have prevailed the past season. The present price may be quoted as 3.6 cents to 3.75 cents for Four-Point Galvanized, with only a moderate business. With the concessions that might be obtained for a large order, it is thought by some well-advised parties that Barb Wire would be a safe purchase.

Cut Nails.

There has been no change in the volume of the business being done, or in the tone of the market, quotations remaining $1.85 to $1.90 for carload lots, and $1.90 to $2 for small lots from store. Little confidence is felt here in the ability of the Western makers to organize the proposed pool.

Wire Nails.

The factories are reported to be generally well supplied with orders, and but little complaint is made of irregularities in price. The fact that a leading Western company is not associated with the other manufacturers in the arrangement for the control of prices does not appear to have any influence in breaking the market, as the company in question are understood to be maintaining prices on the basis agreed upon by the other manufacturers.

Miscellaneous Prices.

The Victor Mfg. Company, Newburyport, Mass., issued a circular relating to the Victor Elastic Cement, which is used for bedding slate, pointing up and preventing leaks in metallic roofs, around chimneys, Copings, Skylights, Gutters, &c. It is described as adhering to all substances, not cracking or peeling off, never becoming brittle, but remaining elastic, hardening into a leather like substance, very durable. It is claimed that Tin, Shingle and Slate roofs can be made permanently water-tight by means of it. The company offer it as a desirable addition to the line handled by Hardware merchants, as well as Lumber Dealers and Dealers in Paints and Building Materials. It is sold at the following prices:

2½ pound cans, per pound	5½ cents.
5 pound cans, per pound	5 cents.
Tubs, 20 to 125 pounds, per cwt	$4.50
Barrels, per cwt	4.50

Besides the prices on Apple Parers which are given in another column, the New Scott Mfg. Co., Baltimore, Md., announce the following quotations on goods of their manufacture:

Hopper Cherry Seeder, per dozen	$3

Melting Ladles, per dozen.

1	2	3	4	5	6
$1.40	2.00	9.00	12.00	14.40	16.00

Arctic Ice Creepers, per gross	$24
Safety Ice Creepers, per gross	15

The following goods are listed as named, and subject to a discount of 20 per cent.:

Deacon Can Opener:	
Japanned, per gross	$36.00
Nickeled, per gross	60.00
Coppered, per gross	36.00
New Idea Can Opener, per gross	15.00
Rotary Can Opener, per gross	20.00
Universal Can Opener, per gross	20.00
Fruit Press:	
2 quart, per dozen	2.25
4 quart, per dozen	3.00
Mammoth Egg Beater, per dozen	50.00
Medallion Egg Beater:	
Regular, per gross	12.00
Medium, per gross	15.00
Victoria Egg Beater, per gross	12.00
Diamond Vegetable Grater, per gross	5.00
Cyclone Roach Traps, per gross	4.00
Peach Pitting Spoon:	
Milled, per gross	36.00
Regular Ground, per gross	24.00

The Axe manufacturers have been in session, but no action in the matter of prices is reported.

A slight advance has been made in the price of Trace and Fancy Chains, the lowest prices made having been withdrawn. Coil Chain is also held with firmness, without quotable change.

There has been a decline of ¼ cent per pound in the price of Sisal Rope, which is now quoted at the following prices for large lots, with a discount of 1½ per cent. for cash in 10 days:

	per pound.
Sisal, ½ inch and larger	9½¢
Sisal, ⅜ inch	10 ¢
Sisal, ¼ and 5-16 inch	10½¢
Sisal, Hay Rope	9½¢
Sisal, Tarred Rope	9 ¢
Sisal, Medium Lath Yarn	8½¢

This reduction of price has been made owing to competition among the manufacturers, notwithstanding the fact that Hemp continues scarce and the factories are generally well supplied with orders. Manila Rope continues firm.

The National Association of Spring Manufacturers met last week in Cincinnati, there being a fair representation of the manufacturers. The business transacted was principally of a routine character. E. H. Bourne, of Cleveland, presided, and G. S. Smith, Fort Plain, N. Y., acted as secretary.

Apple Parers.

There is comparatively little new in this line, the Parers put on the market being substantially the same as last year, with a few improvements. We give below the names of the machines of the different makers, and the prices at which they are sold:

L. A. Sayre, Newark, N. J., makes the following quotations on Parers of his manufacture:

	Per dozen.
Monarch Peach and Apple Parer	$13.50
Waverly Apple Parer	4.50
Ideal Apple Parer, Corer and Slicer	4.75

C. E. Hudson, Leominster, Mass., is putting on the market this season the following Apple Parers, which are quoted at the prices named:

	Per dozen.
Rocking Table	$6 00
Little Star Parer, Corer and Slicer	5.00
Hudson's New '88 Parer, Corer and Slicer.	3.75

Since last season an improvement has been made in the Little Star Parer, by which the slicing knife is made stronger, thus, it is claimed, materially improving the machine, as it is less liable to break or get out of order.

The Reading Hardware Company, Reading, Pa., and 81 Reade street, New York, manufacture the following Apple Parers, which are sold at the prices named:

72	$4.25
Baldwin	5.25
Gem	5.25
76	5.75
78	6.50
Champion	7.75
Advance	4.75

The New Scott Mfg. Company, Baltimore, Md., quote the following prices on their line of Parers:

Rotary Family Peach Parer,	per dozen.	$13.50
Mammoth Peach Parer,	"	6.75
Oriole Parer, Corer and Slicer,	"	4.00
Victor Parer, Corer and Slicer,	"	13.50
Gold Medal Parer,	"	4.00

The Penn Hardware Company, Reading, Pa., as mentioned in our report last week, are making the following machines:

	Per doz.
Penn Apple Parer, Corer and Slicer	$4.00
Perfection Apple Parer, Corer and Slicer.	4.00

The Goodell Company, Antrim, N. H., make the following Parers, which are quoted as below:

Pomona, per doz	$4.00
Turntable, per doz	4.50
New Lightning, per doz	5.50
White Mountain Potato Parer, per doz	4.50
White Mountain Apple Paring, Coring and Slicing Machine, per doz	4.50
Antrim Combination Apple Parer, Corer and Slicer and Potato Parer, per doz	5.50
Family Bay State Apple Paring, Coring and Slicing Machine, per doz	12.00
Improved Bay State Apple Paring, Coring and Slicing Machine, per doz	30.00
Eureka 1888 Hand or Power Paring, Coring and Slicing Machine, each	17.00

The last-named machine is the Eureka 1886, changed and improved somewhat in construction, and called the Eureka 1888.

In addition to the above machines the Henry C. Hart Mfg Company, Detroit, Mich., make the Standard Apple Parer, which has been on the market for several years.

D. H. Whittemore, who can be addressed care Occidental Hotel, New York, advises us that he is making a large or mammoth Champion for use in evaporating factories, hotels, &c., which is sold at $6, subject to a discount of 25 per cent.

Items.

We understand that no sale has yet been made of the factory and business of William A. Ives & Co., Hamden, Conn., which are offered for sale by the executors of Mr. Ives, as per announcement on page 47. In view of the fact that this business is long established and well known the opportunity thus offered to manufacturers desiring to carry on the enterprise is referred to as one deserving their favorable consideration.

Holmes & Edwards Silver Company, Bridgeport, Conn., allude to the success of their Mexican Silver Flatware, which they put on the market about three years ago to meet the demand for a line of unplated goods of superior quality, and state that trade has steadily increased on this better grade, while the demand for Silver Metal has also been continued, there being a market for both grades.

The Morley Respirator Company, East Saginaw, Mich., refer to the utility of their Respirator for use in blacking Stoves and have received a letter from a merchant, in which it is highly commended for this use.

The Underhill Edge Tool Company, Nashua, N. H., for whom Sise, Gibson & Co. are agents, 100 Chamber street, New York, have issued a new catalogue of their goods, which represents their well-known list of Axes and Hatchets, Washoe Picks and Mattocks, Bush Hooks, &c., illustrations being given of the different goods, with list prices.

Thomas Devlin & Co., Philadelphia, Pa., have issued a new price list and illustrated catalogue, in which their line of Butts, Hinges, Latches, Hooks, Brackets, Carriage and Harness Hardware and other manufactures are represented.

By the announcement on page 47, it will be seen that the Commercial Exchange, Des Moines, Iowa, are making efforts to secure the establishment of factories in their city, and allude to the advantages of the location. Some particulars are given which are worthy of consideration.

The trade will observe a Special Notice on page 48, in which a Hardwareman announces his desire for a position in a manufacturing, jobbing or commission Hardware business, and alludes to his experience in office, factory and on the road. His extensive acquaintance with the jobbing trade East and West is also referred to.

Bradlee & Co., Philadelphia, Pa., issue a circular in regard to the care and use of Chain, giving valuable suggestions and

information which will be of service to those for whom they are designed. A table is given of pitch, breaking, proof and working strains, and another giving dimensions of Chain Links.

The well-known Hardware house of Bolles, Kimball & Wilde, 93 Pearl street, Boston, Mass., report a very good demand for the full line of Sargent's Hardware, of which they carry a complete stock, and also the latest specialties in the Hardware trade. Mr. Bolles was for many years partner and buyer for B. Callender & Co., and is regarded as fully posted as to the wants of the retail Hardware trade.

At an exhibition given at the store of John H. Graham & Co., 113 Chambers street, New York, the operation of the Crown Meat Cutter, manufactured by the American Machine Company, Philadelphia, Pa., for whom they are agents, was shown, and its wide range of application indicated, as it was used successively upon a large variety of different substances, including crackers, raw meat, cooked meat, cabbages, potatoes, salt codfish, &c.

The Alford & Berkele Company, 77 Chambers street, New York, have issued a postal relating to the Fish Hooks of the American Needle and Fish Hook Company. They state that the company make no Hooks but File-pointed, which are referred to as sold for much less than any imported made in a similar manner. They allude to the manufacture as follows:

They are carefully inspected before being packed, and have no competition in price except what are called English Dubs, the points of which are ground and of a very inferior quality. We guarantee our Hooks equal, if not superior, in make and temper to any manufactured. These superfine Hooks are made of extra double refined Spring Steel Wire by the most elaborate automatic machine ever constructed. Having made extensive improvements in our machinery and in the process of tempering during the last year we feel perfect confidence in recommending our goods to the public as being superior in manufacture and temper to any other make, and our facilities for manufacturing enable us to undersell the world.

They also state that the new management having determined to control the trade in Fish Hooks in this country are prepared to make prices much below anything before attempted, and so low that importers will not be able to compete with them.

A. H. Reid, Thirtieth and Market streets, Philadelphia, Pa., is manufacturing a line of Dairy Fixtures, besides dealing in general creamery supplies. His circular illustrates his Reid's Square Can Creamery Churn, Butter Worker, the Gauging Butter Printer, Improved Butter Shipping Box, Round Can Creamery, Round Can and Peerless Creameries. The Lightning Brace is referred to as having an increasing sale, while he has also had an unusually large demand for the Butter Shipping Boxes, on which he has made a number of improvements, consisting of malleable iron corners for the protection of the bottom, while the construction of the tray for holding the butter has also been improved.

Humphrey Tool Company, Warren, Mass., issue a circular and price list illustrating their various Hardware specialties, including their Cavity Plane, Circle Gauge, Telescoping Panel Gauge, Pinch Dogs, &c.

Horton, Gilmore, McWilliams & Co., Chicago, Ill., under date September, 22, issue a price-current in which a variety of miscellaneous goods, many of which are seasonable articles, are illustrated. Lanterns, Lamps and Parker & Whipple Clocks are also given a prominent place.

Exports.

We give below abstracts from recent manifests showing the exports in Hardware and related lines which have recently been made to Austrialia and South Africa:

PER BARK BRAZIL, SEPTEMBER 13, FOR PORT NATAL, AFRICA.

By Coombs, Crosby & Eddy.—1 dozen Plows, 6 dozen Saws, 8 dozen Edge Tools, 6 dozen Brooms, 10 dozen Edge Tools, 39 dozen Handles, 304 Plows, 320 Plows, 306 sets Plow Parts, 2 dozen Hardware, 50 sets Plow Parts, 1 dozen Wheelbarrows, 6 Trucks, 6 Plows, 3 Scrapers, 12 dozen Brooms, 1 gross Handles, 200 pounds Nails, 8 dozen Handles, 10 Scales, 4 crates Wash-Machinery, 3 Lawn Mowers, 4 sets Axles, 1 case Oil Stoves, 9 dozen Hoes, 9 cases Hardware, 1 gross Rakes, 16 sets of Axles, 4 Scales, 45 dozen Handles, 650 Spokes, 12 dozen Edge Tools, 28 dozen Tools, 4 Carriages, 4 Carriages, 3 dozen Agricultural Implements, 6 Plows, 6 Trucks, 1 dozen Wheelbarrows, 3 Scrapers, 1 gross Handles, 20 dozen Brooms, 250 pounds Nails, 6 Mangles, 8 dozen Handles, 14 dozen Edge Tools, 5 crates Wash-Machinery, 35 dozen Hardware, 3 Lawn Mowers, 6 dozen Hoes, 70 pounds Oil Stoves, 4 dozen Iron Articles, 9 dozen Pitch Forks, 20 dozen Hardware, 4 Scales, 48 dozen Handles, 11 gross Hardware, 2 dozen Forks, 32 dozen Tools, 1 dozen Organs, 6 Orguinettes, 60 dozen Brooms, 20 gross Blacking, 20 dozen Brooms, 288 Handles, 5 dozen Axles, 12 dozen Handles, 500 feet Cord, 6 dozen Washboards, 10 dozen Woodenware, 2 gross Shoe Blacking, 3 dozen Rakes, 1 dozen Sad Irons.

By Marcial & Co.—10 dozen Slates.

By H. W. Peabody & Co.—11 packages Agricultural Implements, 4 crates Woodenware.

By Arkell & Douglas.—1 Organ, 8 dozen Pumps.

By John Norton & Son.—2 cases Brooms, 7 bundles Handles.

By W. H. Crossman & Co.—3 gross Blacking, 1 case Pumps, 1 bundle Pipes, 25 dozen Shovels, 200 Plows.

PER BARK T. L. SWEET, SEPTEMBER 13, FOR BRISBANE, AUSTRALIA.

By H. W. Peabody & Co.—½ dozen Money Drawers, 408 packages of Hardware, 118 packages Carriage Ware, 71 packages Woodenware, 303 packages Ranges and Stoves, 2 dozen Pumps, 280 boxes Nails, 93 Wringers, 6¼ gross Grease, 342 dozen Handles, 250 Sewing Machines, 6 packages Agricultural Implements, 1 case Clocks, 13 dozen Blacking, 3 cases Perambulators, 40 packages Lampware, 56 cases Windmills, 15 cases Hardware, 310 dozen Handles, 10 dozen Shovels, 140 packages Hardware, 31 packages Agricultural Implements, 36 dozen Shovels, 360 dozen Handles, 4 cases Machinery, 30 packages Carriage Ware, 70 cases Edge Tools, 80 dozen Shovels, 24 crates Stoves, 6 packages Agricultural Implements, 50 boxes Woodenware, ¾ dozen Wringers, 240 dozen Crayons, 22 cases Hardware, 100 dozen Handles, 12 dozen Blacking, 1⅜ gross Grease, 221 Packages Hardware, 4 cases Perambulators, 1 case Oilers, 52 packages Lampware, 16 coils Hose, 116 packages Woodenware, 110 dozen Shovels, 19 packages Agricultural Implements, 546 pounds Nails, 11 packages Fire Arms, 469 1-5 dozen Handles, 86 crates Stoves and Ranges, 4 cases Plated Ware, 2 cases Type-Writers, 4 cases Machinery, 1 case Hardware, 3 cases Plated Ware, 19 cases Perambulators, 36 packages Woodenware, 5 cases Axes, 16⅜ gross Grease.

By A. Field & Co.—9 Lamps, 9 cases Machinery, 5⅛ gross Glass Jars, 4 Perambulators, 6 dozen Presses, 6 dozen Dust-Pans, 7 dozen Choppers, 6 dozen Banks and Knives, 1 gross Rat Traps, 15 Lawn Mowers, 35 dozen Lamp Goods, 72 dozen Butts, 2½ dozen Meat Cutters, ½ gross Hat Racks, 11 dozen Burners, 9 gross Shade Rollers, 33 dozen Egg Beaters, 5 gross Rat Traps, 4 dozen Oil Stoves, 5 dozen Lamps, 3 dozen Sewing Machine Goods, 8 bundles Barrows.

By W. H. Crossman & Co.—1 dozen Carriage Tops, 1 dozen Dashers, 3 cases Hardware, 2 cases Harness, 43 sets Wheels, 3 cases Hardware, 20 dozen Axes, 9 cases Hardware.

By Coombs, Crosby & Eddy.—39 Stoves, 6 Wagon Parts, 11 Velocipedes, 8 dozen House-Furnishing Goods, 4 dozen Carpenters' Tools.

By Meriden Brittannia Company.—2065 pounds Plated Ware.

By Winchester Repeating Arms Company.—1450 pounds Empty Paper Cartridge Cases, 21 Guns, 2000 Cartridges, 27 pounds Tools.

By Fairbanks & Co.—5602 pounds Scales.

By D. C. Pratt.—120 dozen School Slates.

By McLean Bros. & Rigg.—18 dozen Axes, 26 dozen Hatchets.

By Rumsey & Co.—1780 pounds Grain Drills.

By Richmond Cedar Works.—1 case Woodware samples, 1 case Broom samples.

THE ALFORD & BERKELE COMPANY,

77 Chambers street, New York, issue a comprehensive 36-page illustrated price list of Guns, Pistols, Ammunition and related goods, of which a large variety is shown. Descriptions and list prices are also given. It is accompanied by the following discount sheet, which is subject to an additional discount of 2 per cent. for cash in 10 days:

	Discounts and net prices.
Remington 1882 Model Guns, No. 282	$24.30
" " " No. 382	27.00
" " " No. 482	30.00
" Single Guns, No. 1	7.50
" " " No. 2	7.00
" Rifle Canes	6.00
" 1887 Model Guns, No. 1	24.00
" " " No. 2	27.00
" " " No. 3	30.00
" " " No. 4	36.00
" " " No. 5	42.00
" " " No. 6	48.00
Remington Auxiliary Rifle Barrels, 38, 40 and 45 Calibers	6.00
Remington Auxiliary Rifle Barrels, Other Calibers	6.66
Remington Sights for Auxiliary Barrels	1.33
Colt Hammerless Guns, No. 1	60.00
" " " 2	93.75
" Hammer " 10, 10 Gauge	43.88
" " " 10, 12 "	37.13
" " " 12, 10 "	50.63
" " " 12, 12 "	43.88
Smith Hammerless " 2	60.00
" " " 3	75.00
" Hammer " F	41.25
Parker " " T., 10 Gauge	45.00
" " " T., 12 "	41 25
English B. L. Double Guns, No. 200	10.90
" " " 205	12.40
" " " 210	13.40
" " " 220	13.90
" " " 225	15.40
" " " 227	16.40
" " " 230	18.90
" " " 233	24.00
" " " 235	33.00
Belgian " " 100	6.90
" " " 103	8.20
" " " 105	8.20
" " " 110	8.90
" " " 115	8.90
" " " 120	9.90
" " " 130	10.10
" " " 140	9.90
" " " 145	11.20
" " " 150	15.00
" " " 160	12.90
" " " 165	15.20
" " " 170	17.40
" " " 180	22.00
" " " 185	27.00
English M. L. " 11	7.20
" " " 19	9.90
Belgian " " 1	3.50
" " " 2	4.50
" " " 3	5.25
" " " 5	6.25
" " " 6	7.00
" " " 8	7.75
M. L. Single Guns, 99	2.70
" " 95	2.40
" " 91	1.70
" " 90	1.50
Winchester Repeating Shot Guns, No. 1	16.88
" " " " 2	27.00
" " " " 3	37.13
Spencer " " "	32.40
Hopkins & Allen (M. & H.) Single Guns	7.00
Zulu Single Guns, No. 1	2.75
" " 2	3.00
" " 3	3.25
Champion " 1, 10 gauge	7.50
" " 1, 12 "	7.00
" " 2, 10 "	8.50
" " 2, 12 "	8.00
" " 3, 10 "	8.50
" " 3, 12 "	8.00
" " 3H, 10 "	10.50
" " 5, 10 "	10.50
" " 5, 12 "	8.00
Field "	7.50
American Arms Single Guns	$10.00
Remington Rifles, Nos. 1, 1½ & 2...24-22	10.13
" " " ...26-22	10.80
" " " ...28-22	11.48
" " " ...24-32	9.12
" " " ...26-32	9.12
" " " ...28-32	9.72
" " " ...30 32	10.33
" " No. 1 ...28-38	10.13
" " " ...30-38	10.80
" " No. 2 ...28-38	8.00
" " " ...30-38	8.50
Extras for Remington Rifles..discount,	25&10 %
Remington Rifles, No. 3 ...26-22	$12.15
" " " ...28-22	12.83
" " " ...26-32	12.15
" " " ...28-32	12.83
" " " ...30-32	13.50
" " " ...28-38	12.83
" " " ...30-38	13.50
" " " ...26-40	9.00
" " " ...28-40	9.50
" " " ...30-40	13.50
" " " ...28-45	9.50
" " " ...30-45	10.00
" " " ...32-45	10 50
Remington Rifles, No. 3, Double Triggers, Extra	1.35
Remington Rifles, No. 3, Swiss Butt Plate, Extra	1.35
Remington Rifles, No. 3, Swivel and Sling, Extra	1.00
Remington Rifles, No. 3, A. Match, 28 inch.	17.55
" " " " 30 "	18.25
Remington Rifles, No. 3, B. Match, 28 and 30 inch	29.00
Winchester Single Shot Rifles, Plain, Round Barrel	9.80

Winchester Single Shot Rifles, Plain, Octagon Barrel	10.13
Winchester Single Shot Rifles, Special Sporting	20.25
Winchester Single Shot Rifles, Special Match	31.00
Winchester Single Shot Rifles, Extras. Discount	25&10 %
Ballard Sporting Rifles, No. 2, 24-32, 26-32 and 28-32	$10.13
Ballard Sporting Rifles, No. 2, 30-32	10.80
" " " " 28-38	10.13
" " " " 30-38 and 30-44	10.80
Ballard Sporting Rifles, No. 2, 30-38, Ex. Long	11.15
Ballard Gallery Rifles, No. 3, 24-22	10.14
" " " " 26-32	10.80
" " " " 28-32	11.48
" " " " 30-32	12.83
" " " No. 3F	15.20
" Union Hill Rifles, No. 8	22.95
" " " " 9	20.25
Win. Repeating Rifles. 1873 Round	12.15
" " " 1873 Octagon	13.17
" " " 1876 Round	13.17
" " " 1876 Octagon	14.18
" " " 1886 Round	13.17
" " " 1886 Octagon	14.18
" " " Express Round	16.88
" " " " Octagon	18.23
" " " Extras	25&10 %
Colt's " " Nos. 3, 4 and 5, Round, $12.28; Octagon	$13.50
Colt's Repeating Rifles, Nos. 1, 6, 7, 8 and 9, Round, $14.25; Octagon	$15.38
Colt's Repeating Carbines, Round	12.38
Marlin " Rifles, 32-40 and 38-55	13.50
" " " 40-60	14.18
" " " 28-inch Barrel, extra	1.00
Marlin Repeating Rifles, 38 and 44 W. C. F.	13.17
Belgian Flobert " No. 2	1.75
" " " " 3	2.25
" " " " 10	2.50
" " " " 12	3.00
" " " " 15	3.00
" " " " 20	3.75
Quackenbush Air " " 1	6.00
" " " " 2	7.50
" " " " 3	7.50
Wesson Pocket " 10-inch	9.00
" " " 12 "	9.75
" " " 15 "	10.88
" " " 18 "	12.00
Darts, per dozen, 40 cents. Slugs, per M., 60 cents. Felted Slugs, per M	.90
Beans' Gun Cane	20 %
Quackenbush Safety Rifle	$5.00
Sights for Remington and other Rifles	25&10 %

Remington Revolvers:

	Pl. Blued.	Pl. Pl. Eng.	Pl. Iv'y.	Pl. P'rl	Pl. En.	Pl. Iv.	En. P'l.
No. 2-32 R. F.	$2.75	$2.50	$3.25	$3.25	$3.75	$4.00	$4.50
" 3-38 "	....	3.00	4.00	4.00	4.75	5.00	5.75
" 3-38 C. F.	....	3.00	4.00	4.00	4.75	5.00	5.75
Double Deringer	4.50	4.50	5.25	5.25	5.75	6.00	6.50
Vest Pocket	....	1.13	1.50	1.60	1.80	2.00	2.20
New Target, 8-inch	7.50	....	....	....	....	....	....
New Target, 10-inch	9.00	....	....	....	....	....	....
No. 4-38 R. F.	....	2.00	2.75	2.75	3.25	3.50	4.00
" 4-41 C. F.	....	2.50	3.25	3.25	3.75	4.00	4.50
N. M. Army.	6.50	6.00	9.50	8.50	14.00	12.00	17.50

	Pl'd. Eng'd.	Pl'd. Ivory.	Pl'd. Pearl.	Pl'd Pearl.
Revolvers, No. 022	$0.70	$0.90	$1.00	$1.40
" 122	.72	.92	1.00	1.40
" 222	.75	.95	1.05	1.45
" 322	.80	1.00	1.10	1.50
" 422	.85	1.05	1.15	1.55
" 522	.85	1.05	1.45	2.00
" 622	.90	1.10	1.50	2.00
" 132	.87	1.25	1.65	1.80
" 232	.90	1.30	1.70	1.80
" 332	1.00	1.40	1.80	1.90
" 632	1.10	1.50	2.10	2.40

Sharps, 22 Caliber, P. F., $2.25; F. P	$2.50
Colt's "	2.10
Gem " Each 25c., dozen	2.50
Eclipse "	.45
Colt Double Action, 38 Caliber	10.00
" " 44 "	13.00
M. & H. " 32 " 5 Shots	8.50
" " 32 " 7 "	9.50
" " 38 " 5 "	9.50
X, L, Bull Dogs, F. H., 3 inch	2.50
" " " 5 "	3.00
American-British Bull Dogs, 32 and 38 Cal.	1.80
Belgian " " 32 Cal	1.40
" " " 38 "	1.45
" " " 44 "	1.50
Baby, Double Action, 32 "	3.00
" " " 22 " Engrav	3.50
X, L. Bull Dogs, 3 inch	1.90
" " " 5 "	2.40
American Bull Dogs, 2½ inch	1.80
" " " 4½ "	2.30
" " " 6 "	2.60
Extras, 32 Cal.. Engraving	.50
" 32 " Ivory	.75
" 32 " Pearl	1.25
" 38 " Engraving	.50
" 38 " Ivory	.80
" 38 " Pearl	1.35
" 44 " Engraving	.50
" 44 " Ivory	1.00
" 44 " Pearl	1.50
Unique Automatic S. A. Revolvers	2.25
Hopkins & Allen D. A. "	6.50
Forehand & Wadsworth, D. A. Revolvers	6.00
Harrington & Richardson, " "	5.50
Marlin, New D. A. Revolvers	7.50

Smith & Wesson New Departure Revolvers.

Inches	3			3½
32 Caliber	$11			11
Inches	3½	4		5
38 Caliber	$12	12.25		12.50
Inches	3 and 3½	6	8	10
32 Caliber S. A.	$8	9	9.50	10
32 " D. A	9.35	10.35	10.85	11.35

Inches	3¼	4	5	6	8	10
38 Caliber S. A.	$9.40	9.65	10	10.50	11.25	12
38 " D. A.	10.40	10.65	11	11.50	12.25	13

Inches	4	5	6	6½
44 Caliber S. A.	$11.50	11.75	12	12
44 " D. A.	12.50	12.75	..	13

32-44 Target, 6½ inch	13.00
Shot Gun Implements	25 %
Remington Rifle Implements	25&10 %
" Pistol "	25&10 %
Cleaning "	25&10 %
Ideal Reloading Tools	25&10 %
Winchester Reloading Tools	25&10 %
Wilkinson Loaders	25 %
Canvas and Leather Goods	25 %
Game Bags, Flasks and Pouches	25 %
Raymond Extension Ice Skates	25 %
" " Roller Skates, Nos. 1, 2, 3, 4 and 5	$2.00
Raymond Extension Roller Skates, 1B, 3B, 5½B, 2B	1.50
Raymond Extension Roller Skates, 4B and 5B	1.50
Raymond Extension Roller Skates, Speed	7.50
Camping Knives, each 75 cents, dozen	7.50
Hunting "	25 %
Boxing Gloves	25 %
Books	20 %
Compasses	25 %
Oil and Oilers	25 %
Rubber Heel Plates	25 %
Breathing Tubes	20 %
Loaded Shot Gun Shells	20&10 %
Webb Loaders	25 %
Rapid Machine Loaders	25 %
Hand Loaded Wood Powder Cartridges	10 %
Blue Rock Traps	$5.00
Ligowsky "	4.50
Peoria "	4.25
Raub "	4.50
Raub Bases	.75
Blue Rock Pigeons per 1000	9.50
Standard Targets "	9.00
Clay Pigeons "	14.50
Black Birds "	10.00
Raub Card Board Targets "	3.20
Raub Burnt Clay "	4.50
Police Goods	25 %
Yacht and Campaign Cannon	15 %
Finest Bronze Cannon	10 %
Iron Targets	25 %
Paper " and Pasters	25 %
White Mountain Chairs and Stands	25 %
Parts Remington Pistols	25 & 10 %
" " Rifles	25 & 10 %
" " Single Guns	33⅓ & %
" " Double "	33⅓ & %
Gun Material	50 %
Rim Fire Cartridges	50 & 5 %
" Blanks, 22. Per 1000	$1.75
" " 32. "	3.50
" " Other Sizes	50 & 5 & 10 %
Central Fire Cartridges, Pistol Sizes	25 & 5 %
" Blanks, " "	25 & 5 & 10 %
" Cartridges, Sporting and Military Sizes	15 & 25 %
Central Fire Cartridges, Sporting and Military Sizes	15 & 5 %
Central Fire Blanks, Sporting and Military Sizes	15 & 5 & 10 %
Primed Shells and Bullets	15 & 5 %
Brass Shot Shells, First Grade	60 %
" " " Draper's	30 %
" " " Second Grade	65 %
Paper " " First Grade, 10 and 12	25 & 10 %
" " " " 14, 16 and 20	30 & 10 %
" " " A. B. C.	40 & 10 %
" " " I. X. L., Waterproof	40 & 5 %
" " " Club, Rival and Climax, 10 and 12	40 %
Paper Shot Shells, Club, Rival and Climax, 14, 16 and 20	30 and 10 %
Wads	20 %
Primers, Berdan, per 1000	$1.00
" Anvil, "	1 20
" " Hicks No. 2, per 1000	1.10
Shot Cartridges, Rim Fire	50 & 5 %
" " Central Fire	25 & 5 %
Percussion Caps, G. D. and S. B., per 1000	$0.30
" " F. L. and F. C., "	0.36
" " Hicks and U.M.C., "	0.50
" " Musket, "	0.53
" " Eley's, "	0.55
" " Double Waterpr'f, "	1.10

Pounds	1	6¼	12½	25
Powder, Kentucky Rifle	$0.30	$1.50	$2.75	$5.00
" Duck Shooting	.60	3.00	5.75	....
" Electric	.90	....	....	....
" Wood Trap	.68	4.00	....	15.60
" "	.60	3.48	....	13.60

Shot, Drop 5-lb. bags, 31c.; 25-lb. bags, 1.30	
" Chilled and Buck, 5-lb. bags, 36c.; 25-lb. bags, $1.55.	
Pin Fire Shells, Brown, 10 gauge, per 1000	$11.50
" " " 12, 16 and 20 gauges, per 1000	9.50
Pin Fire Shells, Red, 12 and 16 gauges, per 1000	6.00
Concentrators, Starters, Wads, Patches and Lubricants	25 %
Paper Cartridges, No. 31, per 1000	$6.50
" " 36, "	7.50
" " 44, "	10.50
Lefaucheux Cartridges	50&10 %

Trade.

From Louisville our advices under date September 22 are to the following effect:

The Hardware trade of Louisville, Ky., is subject just now to one great disturbing factor. The yellow fever scourge has almost brought business to a standstill in certain sections of several states. Various reports are made by the different dealers, depending on just what trade they reach for, some saying that trade is good, and others giving instances of large orders being canceled. Many customers who were enjoying the festivities of the city were suddenly called home to prevent being kept out by quarantines. Except for this great calamity trade is excellent, and the larger jobbers, who are already behind in filling orders, are adding to their forces of traveling men. Bar Iron is in good demand from the mills, which ought to put them in fair shape. As a fact, they have no reason to complain, as they get all material at very low prices. Cut Nails are quiet, the pool not having materialized as yet, but more firmness is maintained. Wire Nails pursue the even tenor of their way, not being disturbed, but firmly held at full prices. Some jobbers simply to hold certain trade are selling at below mills' prices; this will soon be evened up. Barbed Wire is now considered good property at last low figures, the dealers expecting another advance because the mills say so, but not seeing why there should be at the end of the season, and all the mills running. The demand from store is good.

Principles Applied to the Protection of Trade-Marks.

We reported in a late issue the case of the Russia Cement Company against William N. LePage, in which it was decided that "LePage's Liquid Glue" passed under an assignment which Mr. LePage (as a member of a copartnership) made in 1882 to the Russia Cement Company of the right to use the trade-marks belonging to or in use by said copartnership at that time. The defendant contended that "LePage," being his own name, was not a trade mark, and that in fact he had never assigned his name. He claimed that the name was only a subordinate part of the trade-mark labels attached to the goods, and since these labels had not been in the least imitated, he had a right to use the descriptive phrase "LePage's Liquid Glue," which, in fact it was, to describe his goods. The court said no; but in order that it might not be misunderstood, it added: "While the plaintiff has not sought to prevent the defendant from manufacturing Glue, in order to avoid misunderstanding we add that while the defendant cannot use the words adopted as a trade-name for the article manufactured by him, we do not decide that he may not use the words "Liquid Glue," or other appropriate words to describe his product, or to state in that connection that he is himself the manufacturer of it."

The corporation with which Mr. LePage is connected, and which had done business as the "LePage's Liquid Glue and Cement Company," at once changed its name to "The LePage Glue and Cement Company," and changed its labels to read "W. N. LePage's Improved Process Family Glue," because Mr. LePage had obtained a patent for an improved process of making the Glue. They thought that if Mr. LePage could say that he was the manufacturer he could as well say, "Wm. N. LePage's" as "manufactured by Wm. N. LePage." Both phrases certainly indicate that the Glue is Wm. N. LePage's Glue. The Russia Cement Company objected, however, to the change and brought suit against the company (which was brought to trial September 21, at Boston), saying that the company was bound by the former decision against LePage, and that he was not entitled to use this particular collocation of words, viz., William N. LePage's Family Glue.

The court in this last suit said that the defendant could say Liquid Glue manufactured by William N. LePage, or Liquid Glue manufactured by the company, but that they could not say William N. LePage's Liquid Glue.

This decision is of great importance to manufacturers who use their own names in the possessive case. It was not formerly thought that such names were good trade marks—*e. g.*, it was said by Judge Gray, now of the Supreme Court of the United States, while a Massachusetts judge (Gilman *vs.* Hunnewell, 122 Mass.), that "Hunnewell's Pills" was not a trade-

mark. In many other cases the same idea has been expressed. The same court now seems to have changed its position. The labels of these rival manufacturers of Glue have been shown in their advertisements in this paper and merit comparison. No damages were asked against the LePage Glue and Cement Company, and none were awarded. The company has appealed, and the decision of the highest court of the State will be awaited with much interest.

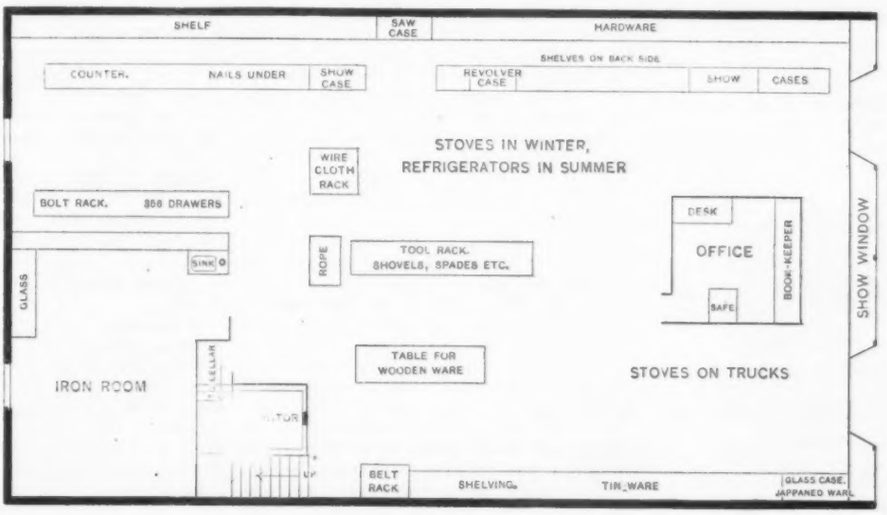


Fig. 270.—Store of Stebbins & Co., Rochester, Minn.

Arrangement of Stores.

Stebbins & Co., Rochester, Minn., furnish us with material for a description of their store, the general arrangement of which is shown in Fig. 270. The office

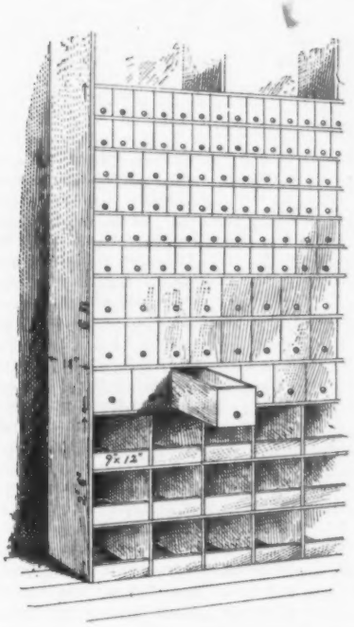


Fig. 271.—Bolt Rack.

occupies, it will be seen, a prominent position in the front of the store, and is referred to as giving a view of the customers as they enter and of what is going on in the store. It is enclosed as high as the standing desk, with a wire railing on top. The elevator is boxed in and is so located that comparatively little space is occupied by it, the stairs going round it, as indicated. Their Bolt rack, Fig. 271, is alluded to as one of the best. There are drawers for 356 sizes of Bolts, with Seat Springs are accommodated, with Barn-Door Hangers underneath. Their Tool rack, Fig. 272, is stationary, with a shelf high enough to stand Shovels, Spades and D-Handled Forks under and Long-Handled Forks and Shovels on the shelf. This rack is built permanently between two posts in the middle of the store and is very satisfactory. It is about 10 feet long. Both sides are utilized. Five dozen Stove Trucks are used in displaying Stoves, so that each Stove has a truck, permitting it to be moved where it will show to the best advantage. Bird Cages, Sleigh Bells, Coal Hods and numerous other bulky articles are hung on rods suspended from the ceiling. Fig. 273 shows the shelving devoted to Wire Cloth. It is a movable rack of shelves 3½ feet long and 6 feet high, the shelves being far enough apart to admit a roll of Cloth. Next to this, Fig. 274, they have another movable rack of shelves of pigeon-holes for Axe and

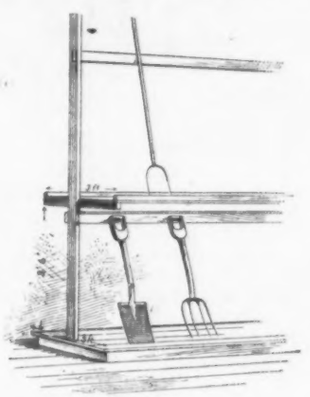


Fig. 272.—Shovel and Fork Rack.

Pick Handles, Hay Knives and Whiffletrees, both ironed and in the rough. Their method of accommodating Belting is shown in Fig. 275. This rack is the same hight as the shelving, and stands out from the wall, as shown in the cut, with iron braces by which it is steadied. This rack accommodates three tiers of Belting. Each roll of Belting has a frame made of 1-inch stuff, with a maple roller with an iron pin through it for the Belt to turn on. One of these frames, it will be observed, is shown separate from the rack. These frames fit in the rack, which is made of 2-inch stuff, and are fastened in by hinged strips across the top and bottom of each section. In the basement Nails, Horseshoes, Barbed Wire, Oils, &c., are stored. The tin shop is on the second floor, and runs across the rear. The balance of the second story is used for storage. The arrangements for supplying the building with water, and the methods adopted for

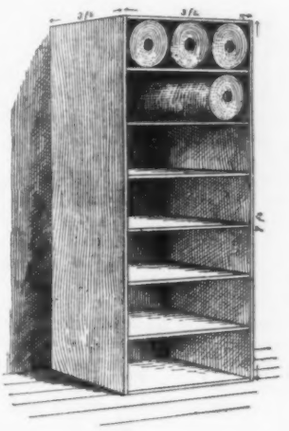


Fig. 273.—Wire Cloth Rack.

keeping it, are also deserving of mention. There is a cistern with force pump and sink behind the door in the Ironroom, and by this water is forced into the tin shop for the sink there. There is also a warehouse 24 x 60 feet for Wagon Stock, and 150 feet of open sheds for Hardwood Lumber, thus giving, it will be observed, together with the Ironroom in the rear of the main store, a complete and convenient arrangement for the business of this enterprising house. A large coal stove is used in the store in cold weather, the tin shop being heated with a furnace in the rear of basement, connected with which is a register in the store, which is sufficient for fall and spring requirements. The smoke-pipe from the furnace runs the whole length of the basement, and is jacketed, with a register from the jacket into the office. Thus, with the furnace, it is pointed out, the shop, basement and office are heated, while it is of use also in

heating the store when necessary. The Oils are kept near the furnace, and thus run freely all winter. The further advantage of this arrangement is that their tinners have no fire to build or look after, no wash water to carry, and no excuse for not attending to business.

The Art of Selling Goods.

By KNARF.

Why we are in the habit of treating persons we are brought in contact with so differently from the treatment we would like to receive ourselves, or the treatment we know would be the most persuasive with us, is an unknown quantity. We say things to them which we expect will produce the results we desire, to make them think as we wish them to

Fig. 274.—Rack for Axe and Pick Handles, Hay Knives, &c.

and see things as we wish them to be seen by them. We know the same things said to us would have an opposite effect, even to making us angry. To deal with people successfully we must be a judge of human nature, and the better judge we are the more successful will we be in our dealings.

Selling goods is a faculty, whether natural or acquired. Some people are good salesmen, others never can be. To dicker is natural to some nations as nations. Yankees have the reputation of being the keenest dealers we have. Get acquainted with your customers and then you will know how to take them. The early drummers were, as a rule, the more successful according to the stock and raciness of their stories, but with the increase of the species, frequency of their visits, rush and competition of business, this accomplishment has fallen into disuse; it does not produce the required results. After a thorough acquaintance with the peculiarities of the person you have to deal with, a knowledge of the goods is indispensable. Their uses, strength and desirable qualities, the purposes for which they are used, can be explained, especially if there is any hesitation on the part of the buyer. The customer will be interested in the purchase very much in proportion as the salesman is. To lay down the article called for on the counter for the customer to examine and employ yourself looking out of the door and whistling will invariably lose you the sale. It will not do, however, to go to the other extreme and be too officious, telling the customers you know it is what they want when they are of the opinion it will not suit. Very few people will stand this.

While it is not well to confuse them by showing too great a variety of the same article, a disposition to sell them what they will afterward consider the best value for their money will be apt to make them buy of you again. An article which suits them after they get home and answers the purpose required, leaves in their mind a favorable impression of the stock and place of business. Never be so smart as to get ahead of your customer; you will be the loser in the end. It is as a rule better to make a concession than to lose a customer, and to do it in a pleasant manner. There are chronic kickers whom no one can please. While retaining a customer, it is well always to have in mind that you, the salesman, are on the inside of the counter and the one you are dealing with on the other side; that you have the advantage of knowing the cost of the article and the regular selling price. Also that the customer has come in unsolicited to buy, and expects to pay your price if it can be bought for no less.

Confidence in your mode of doing business is created in the purchaser's mind if he realizes you are firm in your price and believe the article is worth what you ask for it. Don't lose your grip and be afraid to ask what you consider a fair price for the goods—it is demoralizing. A firm, courteous refusal to cut the price will seldom lose you a sale. Telling a customer the cost of an article does not often help the matter, as there is always a doubt in his mind as to the truth of your statement. Competition is so great that many resort to selling goods almost at cost to close customers, intending to make the profits from those who are not so well posted or so close in their dealings. In fact, honest, equitable dealing between salesman and purchaser is

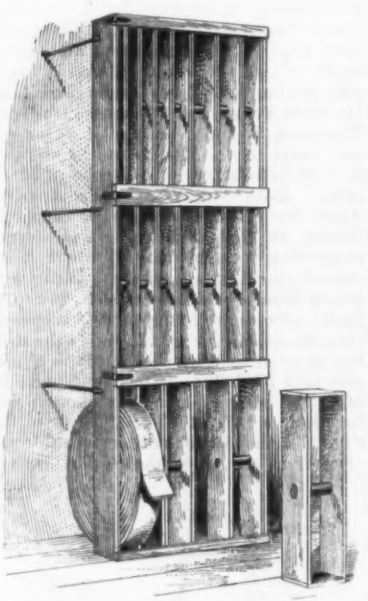


Fig. 275.—Belting Rack.

becoming rare, however much the fact is to be regretted. Short weights or measure, deception in quality or direct falsehood, are too often the rule. While such dealing usually insures short life to the firm practicing it, for the time being it is an injury to the trade.

When unemployed the position of the salesman should be on his feet and near the door. A customer does not like to walk the length of the store to hunt for a salesman—we use the word hunt advisedly—nor should he be expected to. Being near the entrance, your visitor can be taken by the hand, with some commonplace remark about weather, or self or family, and as soon as you see he is ready for business make it easy for him by inquiring what you can show or sell. An abrupt "What will you have," as soon as you have set eyes on each other, is not pleasant for your customer; it usually comes in anything but a pleasant tone of voice when shot at him in this way Now that you have him at your mercy exercise your judgment, and treat him as his disposition requires. After you have sold what he asked for do not let him leave the store without the stereotyped question "Will that be all?" In most cases it will recall something he has forgotten, and thus increase the sales. That is what you are there for, do not forget that. Use all legitimate means to sell each one all you can. When he leaves the store, send him away with a "Thank you," "call again," or some benediction. He must not entertain the feeling you care only for what you have got out of him. Have him carry a good impression away, that, coupled with the pleasant reception and fair dealing, will tend to make that store a popular place to trade, not only for him but his friends. This idea of friends of well-treated and satisfied customers extends to a greater distance than we are apt to think.

It is a poor plan to begin waiting on one customer and leaving him to wait on another. The temptation may be great to hold both when help is short, but it is unsatisfactory to the two customers and yourself. If a party comes in merely to price goods or get information, take time to chat when the desired information has been given; he will find you pleasant and favor you with his trade when he needs anything in your line.

It is poor economy to have a poorly lighted store, or a cold one in winter. Try and have it warm, even in front by the door—it will cause customers to linger. We don't mean loaf, for you haven't any room for loafers. But a warm room is conducive to trade, and a cold, uncomfortable one is not. There are certain people whom you dislike, and one is apt to show it, unconsciously it may be, in your dealings with them. Particular care should be taken to be especially polite and courteous, and thus any dislike may be covered. Their dollars are as good as any one's.

Care must be taken to have the goods clean, and shown in an attractive, orderly manner. A show-window full of dead flies, goods piled in indiscriminately, Fly-Traps and Foot-Warmers, Tin Fruit Cans and Stove Boards, does not show attention to business. A show-case arranged in much the same manner does not show the goods. A stock kept up in assortment will fill the wants of your trade much better than a broken stock, or than the same amount of money put largely in a few articles. If people come to your place of business frequently and find you out of goods you are supposed to keep, they receive the impression that your stock is run down or incomplete and will trade elsewhere. These few hints will awaken in the mind of the reader other improvements in method of conducting his business which will be helpful, or at least these suggestions can be adapted to his local needs.

The *Master Mechanic* in a recent issue very appropriately says: "While there is a general call for a class of engineers who will control their engines by means of the reverse lever, is it not well to ask why some one does not call in a still louder voice for a class of locomotive builders who will put more notches in the quadrants? It is safe to say that, while locomotives have only one-third of the notches in the quadrant that it is possible to easily put there, engineers will use the throttle as a governor, if for no other reason than that they are more or less compelled to do so if the regulation is to be at all even. It is difficult to make an intelligent engineer comprehend the importance of following a method which is allowed to appear to be unworthy of the small outlay for a few notches

Improvement in Locks.

The Nashua Lock Co., Nashua, N. H., of whom C. F. Guyon & Co., 99 Reade street, New York, are agents, are calling attention to improvements which they have recently made in their line of locks. Among these they refer to the Nashua N. system of attaching spindles or knobs for use with roses only, or rose escutcheon combined; Nashua new steel swivel spindles, and reversible spindle hubs; reversible anti-friction latch, and K system of night work adjustment. We illustrate below two of these specialties. In addition to the customary methods of attaching knobs to spindles the company have perfected and applied for a patent on a plan of their own, which they designate as the N system. In this system the knobs are made with longer shanks than usual and are $1\frac{1}{16}$-inch diameter, so as to go through the rose or rose and escutcheon combined, and rest on each side of the lock case. One knob being riveted to the spindle is intended to be used on the outside of the door. The other knob is fastened by a screw which goes through one side of the shank and through the spindle and is secured firmly by a thread cut in the other side of the shank. The N system is illustrated in the accompanying cut, Fig. 1. The N system of knobs for inside doors have $\frac{5}{16}$-inch straight spindles, while those designed for outside doors have $\frac{5}{16}$-inch swivel spindles, which are described as made so that they will work equally well in a solid hub. Among the advantages claimed for the N system are the following: That pulling on the knob made in this way has no tendency to separate or open the lock; that as one knob is always riveted to the spindle, such knob can always be on the outside and would preclude its being taken off and possibly the lock opened; that the N knobs can be kept in place without the least dependence on the roses, thus lessening the friction between knobs, shanks and roses, and enabling one to use roses only with equal advantage as rose and escutcheon combined, and that as the knob screws go entirely through one side of the shank and into the opposite side of the shank they will under no circumstances work loose.

Fig. 2 represents the new steel swivel spindle, $\frac{5}{16}$ inch, with reversible hub, which the company offer as an important improvement in front-door locks. The pin is to prevent any clandestine opening of the door from the outside by pushing the spindle through the hub after removing the knob, as is liable to be done with the old-fashioned swivel spindle knobs. It is also to be noticed that locks supplied with this patent swivel-spindle hub are made reversible by turning over the latch bolt and both parts of the hub, and, the hub being made to fit $\frac{5}{16}$-inch spindles, enables the dealer to trim to suit his customers with any size of knobs he carries in stock. This is regarded as a feature of considerable importance, tending as it does to make an ordinary stock of locks and knobs more than usually available. Any of the company's knobs can be furnished with this new spindle.

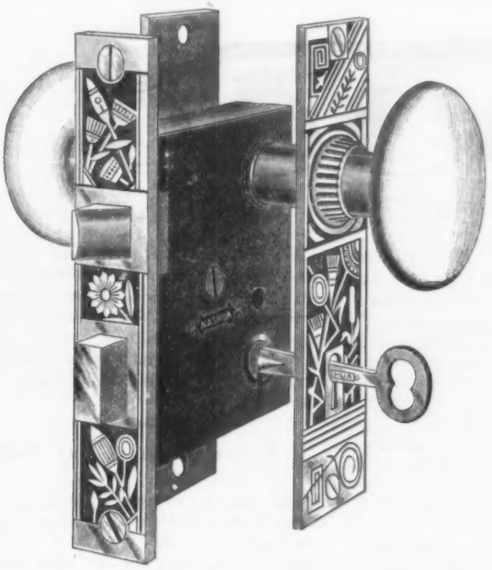


Fig. 1.—Nashua N. System of Knobs.

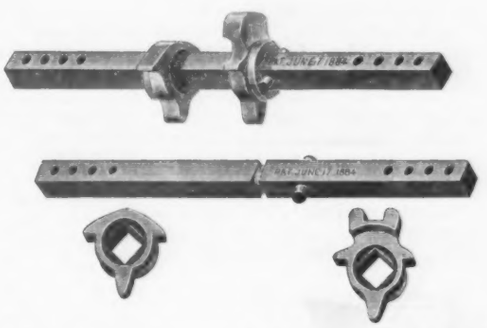
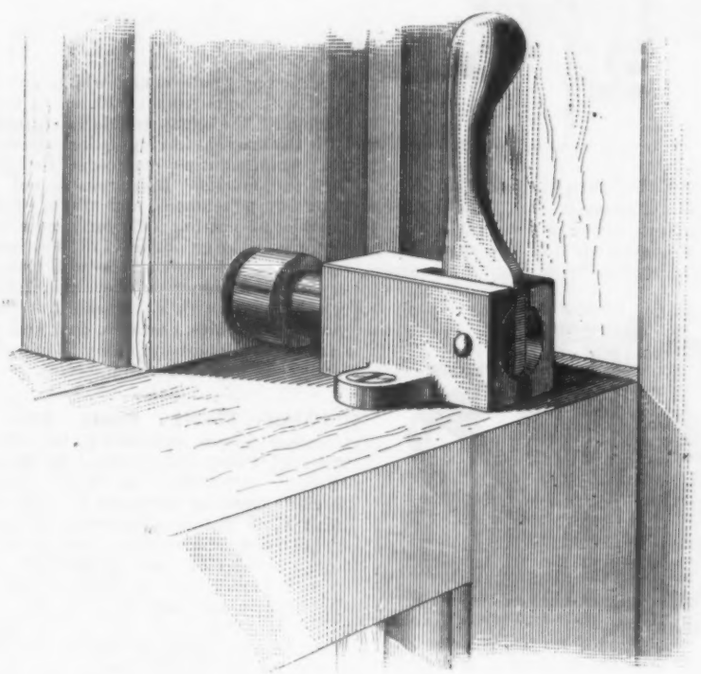


Fig. 2.—Steel Swivel Spindle 5-16 Inch, with Reversible Hub.

Post's Window Fastener.

The accompanying illustration represents a simple and efficient device which has been patented by A. J. Post, of E. L. Post & Co., 10 Peck Slip, New York, by whom it is manufactured and put on the market. It is represented in the cut as attached to the top of the lower sash, and its use will be understood as fastening the sashes and preventing them from rattling. The fastener consists of a bolt with a rubber end, such bolt being operated by a lever attached to a cam, thus giving the desired pressure with comparatively little power, easily applied. This simple device is so efficient in operation that it is described by the manufacturers as fastening windows securely so that they cannot be moved without releasing the pressure of the bolt. The rubber end is screwed on instead of being one solid piece, making the fastener adjustable, so that the bolt can be lengthened by slightly unscrewing the rubber end. This fastener is made in bronze, nickle-plate and brass. Its simplicity, efficiency of operation, durability, strength and neatness of appearance, as well as the ease with which it is applied, are the points which are made in regard to it. The low price at which it can be offered is also referred to.

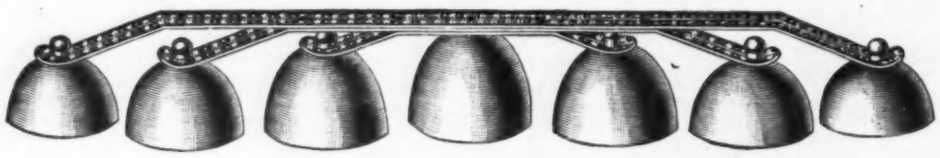


Post's Window Fastener.

A large iron reservoir is to go up in Malden, Mass. The city has made a contract with the Cunningham Iron Works Company, of Boston, for the sum of $20,940, to build a wrought-iron reservoir to contain 1,158,000 gallons of water. It will be 75 feet in diameter and 35 feet high, and built of plate iron $\frac{3}{4}$ inch in thickness and of a tensile strain of 50,000 pounds per square inch of section. This reservoir will contain 4344 tons of water when full, and is the largest iron reservoir on this continent.

Musical Pole Chime.

The illustration given below represents one of the new styles of Swiss Tuned Pole Chimes put on the market by the Chapman Mfg. Company, Meriden, Conn. It will be observed that the chime is so arranged that the bells are free from the shaft or pole, giving them a chance to retain the vibration. The cut represents a chime of seven bells, but the chimes are made with three or four bells for a single horse on the same principle. The chimes are described as finished in nickel, gold, silver or brass plated, and attuned to the chord of E, and as having a melodious and resonant sound which is very pleasing.



Swiss Tuned Pole Chime.

The Crown Meat Cutter.

The illustrations given below represent a new meat cutter, which is being put on the market by the American Machine Company, Philadelphia, Pa., for whom John H. Graham & Co., 113 Chambers street, New York, are agents. Fig. 1 gives a general view of the machine in position for use, while Fig. 2 represents the parts of which the machine consists. From these illustrations it will be seen that the machine is attached to the table or other fixture by means of clamps, and that the essential parts of the machine are the hopper frame with feeder, the cutting screw, the cone and the crank.

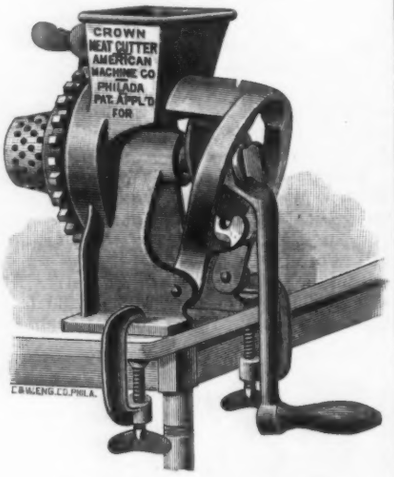


Fig. 1.—The Crown Meat Cutter.

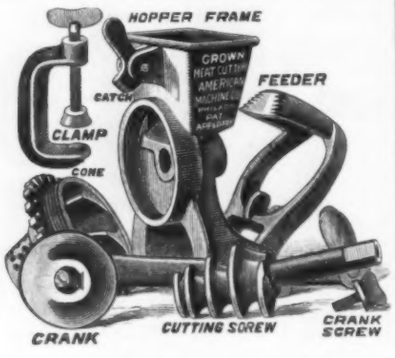


Fig. 2.—Parts of the Crown Meat Cutter.

An interesting feature of this machine is the feeder and the manner in which it operates, it being so constructed that the turning of the crank by means of the eccentric shown moves the feeder in and out, thus forcing into the cutting screw such meat or other substance as is to be operated upon by the machine. The form and construction of the cone are also specially alluded to as embodying new features, in connection with which there are important advantages. The following instructions for operating the machine will further indicate its special features.

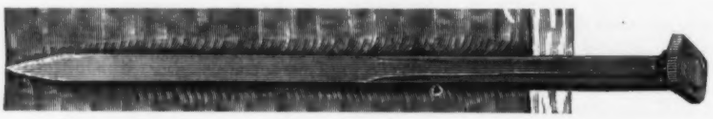
For operation, fasten frame firmly to the table; see that the cone is screwed moderately tight upon the cutting screw, then drop catch in notch to hold it there; the cam part of the crank must lay in the notch of the feeder, and the thumbscrew holds crank in its place on the screw shaft. Drop pieces to be cut, one after the other, in the hopper, and by the turning of the crank these will be pushed forward by the feeder, so that the heel of the screw will catch and force them forward in the cone, where they will be cut between the sharp edges of the revolving screw and those of the stationary oblique knives in the cone (as between the blades of a pair of scissors) and finally be reduced to a uniform size by a further cutting in passing through the holes at the end of the cone.

The manufacturers point out that the work of cutting is thus advantageously divided, and all the unnecessary friction and waste of power avoided. The desired degree of fineness is obtained by the use of different grade cones, which are supplied with holes from $\frac{1}{4}$-inch up to $\frac{5}{8}$-inch diameter, the cone regularly furnished with the machine having $\frac{3}{16}$-inch diameter. The manufacturers emphasize the point that the machine thus constructed has important advantages, and allude to it as capable of cutting efficiently and satisfactorily a large variety of substances, some of which cannot be as well managed in other machines. They state that it can be used with equal ease for fruits, meats, vegetables, crackers, &c., and refer to its strength and simplicity as important features in its construction.

China's Foreign Trade.—Some interesting figures concerning the foreign trade of China are supplied by Minister Denby. According to these, Chinese foreign commerce increased in value during 1887 to the very important extent of $28,000,000, the customs revenue showing an increase of nearly $6,500,000. The exports were greater by $10,400,000 and the imports increased $17,740,215. The decrease of trade with the United States is noteworthy, although we are not alone in this respect, for Mr. Denby says that at the 19 treaty ports the imports of English and American drills fell off from 416,699 pieces and 620,803 pieces, respectively, in 1886, to 288,511 pieces and 464,731 pieces, respectively, in 1887. The value of the imports from the United States in 1886 was 4,647,333 taels and in 1887 3,398,390 taels, a decrease of over 1,000,000 taels, or more than $5,000,000. This is accounted for to some extent also by the decrease in the imports of petroleum. The exports to the United States were valued in 1886 at 11,928,404 taels and in 1887 at 11,545,406 taels. The total trade with the United States was 14,677,487 taels in 1886 and 12,314,310 taels in 1887. Thus it will be seen that our exports to China are falling off, while our imports from that country remain substantially unchanged. The balance of trade last year was slightly in our favor—about $1,000,000—but the anti-Chinese agitation in this country may serve to prejudice the Chinese against buying our products, and as a result we may be deprived of a market in which for a number of years we have been making very fair headway.

A New Form of Cut Nail.

The accompanying illustration represents a new steel cut nail, of which at present the Calumet Iron and Steel Company, of Chicago, are the sole manufacturers. Its sides are parallel, it has a chisel point, and it is cut so light as to run about the same number to the pound as the wire nail. The manufacturers claim a number of advantages for this new form of nail over both the old style of cut nail and the wire nail. The old-style cut nail with a blunt point necessarily break the fiber of the wood into which it is driven, while the parallel chisel-pointed nail cuts, separates and deflects the fiber slightly downward compactly on the side of the nail, thus causing the wood to fit tightly about it, and excluding moisture to rot the wood, and in time loosen the nail. Being also rough, and of uniform width throughout its length, instead of smooth and wedge-shaped like the old style of cut nail, it naturally has greater holding power. Actual tests are reported by the manufacturers as showing 30 to 75 per cent. more holding power than the old cut nail, and 50 to 100 per cent. more than the wire nail, according to the character of the wood. The new nails are also claimed to drive in hard wood without bending, where the wire nail cannot be used without first boring holes. Being of about the same weight as wire nails, they commend themselves to those who desire light, strong nails at a lower price. They are sold at a slight advance above the price of the ordinary steel cut nail and are branded "P. C. P."



The "P. C. P." Nail.

An alloy, the electrical resistance of which diminishes with increase of temperature, has recently been discovered by Mr. Edward Weston. It is composed of copper, manganese and nickel. Another alloy due to the same investigator, the resistance of which is practically independent of the temperature, consists of 70 parts of copper combined with 30 of ferromanganese.

CURRENT HARDWARE PRICES.

SEPTEMBER 26, 1888.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

Ammunition.

Caps, Percussion, ₱ 1000—
Hicks & Goldmark's
F. L. Waterproof, 1-10's ..... 50¢
R. B. Trimmed Edge, 1-10's ..... 65¢ } dis 33⅓ & 25 & 7½ %
E. B. Ground Edge, Central Fire, 1-10's 70¢
Double Waterproof, 1-10's $1.40
Musket Waterproof, 1-10's ..... 50¢
G. D. ..... 33¢
S. B. ..... 30¢
Union Metallic Cartridge Co.
F. C. Trimmed ..... 50¢
F. L. Ground ..... 65¢ } dis 25 & 25 & 7½ %
Cen. Fire Ground ..... 70¢
Double Waterproof $1.40
Double Waterproof, in 1-10's $1.40
S. B. Genuine Imported ..... 45¢
Eley's E. B. ..... 54¢ @ 55¢
Eley's D Waterproof, Central Fire $1.60

Cartridges—
Rim Fire Cartridges ..... dis 50&5&2 %
Rim Fire Military ..... dis 15&2 %
Central Fire, Pistol and Rifle ..... dis 25&5&2 %
Central Fire, Military & Sporting ..... dis 15&5&2 %
Blank Cartridges, except 22 and 32 cal., an additional 10 % over above discounts.
Blank Cartridges, 22 cal ..... $1.75, dis 2 %
Blank Cartridges, 32 cal ..... $3.50, dis 2 %
Primed Shells and Bullets ..... dis 15&5&2 %
B. B. Caps, Round Ball ..... $1.75, dis 2 %
B. B. Caps, Conical Ball, Swaged ..... $2.00, dis 2 %
Small extras given by some dealers.

Primers—
Berdan Primers all sizes, and B. L. Caps (for Sturtevant Shells) ..... $1.00, dis 2 %
All other Primers, all sizes ..... $1.20 dis 2 %

Shells—
First quality, 4, 8, 10 and 12 gauge ..... dis 25&10&2 %
First quality, 14, 16 and 20 gauge ($10 list) ..... dis 30&10&2 %
Star, Club, Rival and Climax Brands, 10-gauge, $9 list ..... dis 33⅓ & 10 & 2 %
Star, Club, Rival and Climax Brands, 12 gauge, $8 list ..... dis 10 & 2 %
Club, Rival and Climax Brands, 14, 16 and 20 gauge ..... dis 30&10&2 %
Selbold's Combination Shot Shells ..... dis 15&2 %
Brass shot Shells, 1st quality ..... dis 60&2 %
Brass Shot Shells, Club, Rival, Climax ..... dis 65&2 %
A. B. & C. Co., I. X. L., 10 & 12 gauge ..... dis 40&5&2 %
A. B. & C. Co., "Special," 16 gauge ..... dis 30&10&5&2 %
A. B. & C. Co. "Special," 10 & 12 gauge ..... 40&10&2 %
Fowler's Patent, 10 & 12 gauge, ₱ 100 ..... $3.75

Shells Loaded—
List No. 19, 1887 ..... dis 20 & 10 %

Wads—
U. M. C. & W. R. A.—B. E., 11 up $2.00
U. M. C. & W. R. A.—B. E., 9&10 ..... 2.80
U. M. C. & W. R. A.—B. E., 7&8 ..... 2.60
U. M. C. & W. R. A.—P. E., 11 up 3.10
U. M. C. & W. R. A.—P. E., 9&10 ..... 4.00
U. M. C. & W. R. A.—P. E., 7&8 ..... 4.00
D'n 20&2 % With small extras.
Eley's B. E., 11 up $1.75
Eley's P. E., 11 @ 20 ..... $2.80

Anvils.—Eagle Anvils ..... ₱ ₺ 10¢, dis 20 @ 20&5 %
Peter Wright's ..... 9½¢
Armitage's Mouse Hole ..... 8½¢
Armitage Mouse Hole, Extra ..... 11½ @ 11½¢
Trenton ..... 9½ @ 9½¢
Wilkinson's ..... 9½ @ 10¢
J. & Riley Carr. Patent Solid ..... 11 @ 11½¢

Anvil Vise and Drill—
Millers Falls Co. ..... $18.00, dis 20 %
Chenev Anvil and Vise ..... dis 25 %
Allen Combined Anvil and Vise ..... $3, dis 40&10 %
Moore & Barnes Mfg. Co. ..... dis 33⅓ %

Augers and Bits.
Douglass Mfg. Co.
New Haven Copper Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co.
French, Swift & Co. (F. H. Beecher)
} ..... dis 70 %
Cook's, Douglass Mfg. Co. ..... dis 55 %
Cook's, New Haven Copper Co. ..... dis 50&10@50&10&5 %
Ives' Circular Lip ..... dis 60 %
Patent Solid Head ..... dis 30 %
C. E. Jennings & Co., No. 10, extension lip ..... dis 40 %
C. E. Jennings & Co., No. 30 ..... dis 60 %
C. E. Jennings & Co., Auger Bits, in fancy boxes, ₱ set, 33⅓ quarters, No 5, $5; No. 3C, $2 ..... dis 20 %
Lewis' Patent Single Twist ..... dis 45 %
Russell Jennings' Augers and Bits ..... dis 25 %
Imitation Jennings' Bits (new list) ..... dis 60@65&5 %
Pugh's Black ..... dis 20 %
Car Bits ..... dis 50&10@60 %
L'Hommedieu Car Bits ..... dis 15&10 %
Forstner Pat. Auger Bits ..... dis 10 %

Hollow Augers—
Ives
French, Swift & Co.
Douglass'
} ..... dis 35&10 @ 25&10&5 %
Bonney's Adjustable ₱ doz. $48 ..... dis 40&10 %
Stearns' ..... dis 20&10 %
Ives' Expansive, each $4.50 ..... dis 50&10 %
Universal Expansive, each $4.50 ..... dis 20 %
Wood's ..... dis 25 @ 25&10 %

Expansive Bits—
Clark's small, $18; large, $36 ..... dis 33 @ 25&5 %
Ives' No. 4, per dos., $90 ..... dis 35 @ 40 %
Swan's ..... dis 40 %
Steer's, No. 1, $26; No. 2, $22 ..... dis 35 %
Stearns' No. 2, $48 ..... dis 20 %

Gimlet Bits—
Common ..... ₱ gross $2.75 @ $3.25
Diamond ..... ₱ doz. $1.10, dis 25&10 %
"Bee" ..... dis 25 @ 25&5 %
Double Cut, Shepardson's ..... dis 45 @ 45&5 %
Double Cut, Ct. Valley Mfg. Co. ..... dis 30&10 %
Double Cut, Hartwell's, ₱ gro. $5.25
Double Cut, Douglass' ..... dis 40&10 %
Double Cut, Ives' ..... dis 60 @ 60&5 %

Bit Stock Drills—
Morse Twist Drills ..... dis 50&10&5 %
Standard ..... dis 50&10&5 %
Cleveland ..... dis 50&10&5 %
Syracuse, for metal ..... dis 50&10&5 %
Syracuse, for wood (wood list) ..... dis 30 @ 30&5 %
Williams' or Holt's, for metal ..... dis 50&10&10 %
Williams' or Holt's, for wood ..... dis 40&10 %

Ship Augers and Bits—
L'Hommedieu's ..... dis 15&10 %
Watrous's ..... dis 15&10 %
Snell's ..... dis 15&10 %
Snell's Ship Auger Past'n Car Bits. dis 15&10 %
} Extras often given.

Awl Hafts.
Sewing, Brass Ferrule ..... $3.50 ₱ gross—dis 45&10 %
Patent Sewing, Short ..... $1.00 ₱ doz—dis 40&10 %
Patent Sewing, Long ..... $1.20 ₱ doz.—net
Patent Peg, Plain Top ..... $10.00 ₱ gross—dis 45&10 %
Patent Peg, Leather Top ..... $12.00 ₱ gross—dis 45&10 %

Awls, Brad Sets, &c.
Awls, Sewing, Common ..... ₱ gross $1.70—dis 35 %
Awls, Shouldered Peg ..... ₱ gross $2.45—dis 40@40&10 %
Awls, Patent Peg ..... ₱ gross 63¢—dis 40@40&10 %
Awls, Shouldered Brad ..... $2.70 ₱ gross—dis 35 %
Awls, Handled Brad ..... $7.50 ₱ gross—dis 45 %
Awls, Handled Scratch ..... $7.50 ₱ gross—dis 35&10 %
Awls, Pocket Scratch ..... $1.50 ₱ doz—dis 25 @ 20 %

Awl and Tool Sets.
Aiken's Sets, Awls & Tools, No. 20, ₱ doz. $10—dis 55&10 %
Gray's Ad Tool Hdls., Nos. 1, $12; 2, $18.; 3, $12; 4, $9. dis 25@25&10 %
Miller's Falls Adj. Tool Hdls., Nos. 1, $12; 2, $18. dis 25 %
Henry's Combination Hafts ..... ₱ doz. $6
Brad Sets, No. 42, $10.50, No. 43, $12.50 ..... dis 70&10&5 %
Brad Sets, Stanley's Excelsior, No. 1, $7.50.
Brad Sets, Stanley's Excelsior, No. 2, $4.00.
Brad Sets, Stanley's Excelsior, No. 3, $5.50.
} dis 30&10 %

Axes.
Maberr' and Special Brands—
First quality ..... ₱ doz. $6.00 @ $6.50
Others ..... ₱ doz. $5.50 @ $5.75

Axle Grease.
Fraser's, in bulk ..... Keg ₱ ₺, 4¢; Pail, ₱ ₺, 5¢ net
Frasers, in boxes ..... ₱ gross $9.50
Dixon's Everlasting, in bxs., ₱ doz., 1 ₺: $1.20; 2 ₺, $2
Dixon's Everlasting ..... 10-₺ pails, each, 85¢
Lower grades, special brands ..... ₱ gro $5.50 @ $7

Axles.—No. 1, 4¢ @ 4½¢ No. 2, 5½ @ 5¾¢.
Nos. 7 to 13 ..... dis 50@55 %
Nos. 19 to 23 ..... dis 60&10&10@70 %
National Wrought Steel Tubular Self-Oiling:
Standard Farm (1 to 5) and Special Farm (A1 to A5)
Less than 10 sets ..... dis 33⅓ %
Over 10 sets ..... dis 33⅓&5 %
X Strong Exp. (6 to 9), & XX Strong Truck (10 to 16):
Less than 10 sets ..... dis 10 %
Over 10 sets ..... dis 10&5 %

Bag Holders.
Sprengle's Pat., ₱ doz $18 ..... dis 60 %

Balances.—Spring Balances ..... dis 50 %
Common Scale Beams ..... ₱ doz., $1.50—dis 50 %
Chatillon's Spring Balances ..... dis 50 %
Chatillon's Circular Spring Balances ..... dis 60 %

Bells.
Hand—
Light Brass ..... dis 70&10 %
Extra Heavy ..... dis 60&10 %
White Metal ..... dis 60&10&10 %
Silver Chime ..... dis 33⅓&10 %
Globe (Cone's Patent) ..... dis 25&10 @ 35 %

Door—
Gong, Abbe's ..... dis 33⅓&10 %
Gong, Yankee ..... dis 45&10 %
Gong, Barton's ..... dis 40&10 @ 50 %
Crank, Taylor's ..... dis 25&10 %
Crank, Brooks' ..... dis 50&10&2 %
Crank, Cone's ..... dis 10 %
Crank Connell's ..... dis 20&10 %
Lever, Sargent's ..... dis 60&10 %
Lever, Taylor's Bronzed or Plated ..... net
Lever, Taylor's Japanned ..... dis 25&10 %
Lever, B. E. ₱ Co's ..... dis 50&10&2 %
Pull, Brook's ..... dis 50&10&2 %
Pull Western ..... dis 25&10 %

Cow—
Common Wrought ..... dis 60&10 %
Western ..... dis 20&10 %
Western, Sargent's list ..... dis 70&10 %
Kentucky "Star" ..... dis 20&10 %
Kentucky, Sargent's list ..... dis 70&10 %
Dodge, Genuine Kentucky, new list. dis 70@70&10 %
Texas Star ..... dis 50&10 @ 50&10&5 %
Bell ..... dis 40@40&5 %
Farm Bells ..... ₱ ₺, 3¢ @ 3½¢
Steel Alloy Church and School Bells ..... dis 40 %

Bellows.—Blacksmiths' ..... dis 60&10&5 @ 60 %
Molders' ..... dis 40 @ 40&10 %
Hand Bellows ..... dis 40&10 @ 50 %

Belting, Rubber.
Common Standard ..... dis 70&10 %
Standard ..... dis 70&70&5 %
Extra ..... dis 60&10 %
N. Y. S. & P. Co., Standard ..... dis 60&5 %
N.Y.S.&P Co., Extra Standard ..... dis 50&10 %

Bench Stops.
Morrill's ..... ₱ doz $9—dis 50 %
Hotchkiss's ..... ₱ doz $5.00—dis 10 @ 10&10 %
Weston's, per doz No. 1, $10; No. 2, $9 ..... dis 25&10&5 %
McGill's ..... ₱ doz $3—dis 10 %

Bits.—Auger, Gimlet Bit Stock, Drills, &c., see Augers and Bits.

Bit Holders.
Extension, Barber's ..... ₱ doz $15.00—dis 40 @ 40&10 %
Extension, Ives' ..... ₱ doz $20.00—dis 60&5 @ 60&10 %
Diagonal ..... ₱ doz $24.00—dis 40 %
Angular ..... ₱ doz $24.00—dis 40&5 %

Blind Adjusters.
Domestic ..... ₱ per doz $3.00—dis 33⅓ %
Excelsior ..... ₱ doz $10.00—dis 50&10&2 %
Washburn's Self-Locking ..... dis 20 @ 20&10 %

Blind Fasteners.
Mackrell's ..... ₱ doz pairs, $1.00—dis 20@20&10 %
Van Sand's Screw Pattern ..... $15 ₱ gro.—dis 60&10 %
Van Sand's Old Pattern ..... $15 ₱ gro.—dis 55&10 %
Washburn's Old Pattern ..... $9 ₱ gro. net
Merriman's ..... new list, net
Austin & Eddy No. 2008 ..... $9 ₱ gro. net
Security Gravity ..... $9 ₱ gro. net

Blind Staples.
Barbed, ½ in. and larger ..... ₱ ₺ 7½ @ 8¢ net
Barbed, ⅜ in ..... ₱ ₺ 8½ @ 9¢ net

Blocks.
Ordinary Tackle, list April 17, '85 ..... dis 40 %
Cleveland Block Co., Mal. Iron ..... dis 50 %
Novelty Tackle Blocks, Mal. Iron ..... dis 50 %

Bolts.
Door and Shutter—
Cast Iron Barrel, Square, &c. ..... dis 70 @ 70&10 %
Cast Iron Shutter Bolts ..... dis 70 @ 70&10 %
Cast Iron Chain (Sargent's list) ..... dis 65&10 %
Ives' Patent Door Bolts ..... dis 60 %
Wrought Barrel ..... dis 70 @ 70&10 %
Wrought Square ..... dis 70 @ 70&10 %
Wr't Shutter, all Iron, Stanley's list ..... dis 60&10 %
Wr't Shutter, Brass Knob, Stanley's ..... dis 40&10 %
Wrought Shutter, Sargent's list ..... dis 60&10 %
Wrought Sunk Flush, Sargent's list ..... dis 55&10 %
Wrought Sunk Flush, Stanley's list ..... dis 50&10 %
Wrought S.K. Flush, Com'n Stanley's list. dis 55&10 %

Carriage—
Com. list June 10, '84 ..... dis 75&2½&2 %
Genuine Eagle, list Oct., '84 ..... dis 75&10 %
Phila. pattern, list Oct. 7, '84 ..... dis 75&10@75&10&5 %
R. B. & W., old list ..... dis 70 %

Tire—
Common, list Feb. 28, 1883 ..... dis 70 %
P. C. B. & N. Co., Empire, list Feb. 28, 1883 ..... dis 70 %
P. C. B. & N. Co., Philadel., list Oct. 84 ..... dis 82½ %
P.C.B.&N.Co., Keystone, Phil. list, Oct. '84 ..... dis 80 %
P.C.B.&N.Co., Norway, Phil. list, Oct. '84 ..... dis 75&10 %
Am. S. Co., Norway, Phil., list Oct. 16, '84 ..... dis 75&10 %
Am. S. Co., Eagle, Phil., list Oct. 16, '84 ..... dis 80 %
Am. S. Co., Philadel. list, Oct. 16, '84 ..... dis 82½ %
Am. S. Co., Bay State, list Feb. 28, '83 ..... dis 70 %
R. B. & W., Philadel. list Oct. 16, 1884 ..... dis 82 %
R. & E. Mfg. Co. ..... dis 70 %

Stove and Plow—
Stove ..... dis 62½ %
Plow ..... dis 60&5 %
Am. S. Co. Stove, Annealed ..... dis 62½ %
R. B. & W., Plow ..... dis 55 %
R. B. & W., Stove ..... dis 62½ %
R. & E. Mfg. Co., Stove ..... dis 62½ %
Machine ..... dis 75&10 @ 80 %
Bolt Ends ..... dis 75&10 @ 80 %

Borax ..... ₱ ₺ 9¾@10½¢

Boring Machines.

Without Augers.	Upright.	Angular.	
Douglass	$5.50	$6.75	dis 50 %
Snell's, Rice's Patent	5.50	6.75	dis 40&10&10 %
Jennings	5.50	6.75	dis 45@45&10 %
Other Machines	2.25	2.75	net
Phillips' Pat., with Augers	7.00	7.50	net

Bow Pins
Humason, Beckley & Co.'s ..... dis 60&10 %
Sargent & Co.'s ..... $17 and $18, dis 60&10 %
Peck, Stow & W. Co. ..... dis 60&10 @ 50&10&5 %

Braces.
Backus, Nos. 110 to 114 and 31 to 33 ..... dis 60&5@60&10%
Backus, Nos. 6, 8, 12, 14 ..... dis 60&10&5 %
Backus, Nos. 16, 18, 20, 29, 7 9, 11 ..... dis 70&10&5 %
Barber's, Nos. 10 to 16 ..... dis 50 %
Barber's, Nos. 30 to 33 ..... dis 50¢
Barber's, Nos. 40 to 65 ..... dis 50&10¢
Barker's, Nos. 8, 10 and 12 ..... dis 75&10@80 %
Barker's, Plated, Nos. 8, 10 and 12 ..... dis 65&10@70 %
Osgood's Ratchet ..... dis 40&10&50 %
Spofford's ..... dis 50&10 %
Ives' New Haven Novelty ..... dis 70 @ 70&5 %
Ives' New Haven Ratchet ..... dis 60&5 @ 60&10 %
Ives' Barber Ratchet ..... dis 60&5 @ 60&10 %
Ives' Barbers ..... dis 60&5 @ 60&10 %
Ives' Spofford ..... dis 60&5 @ 60&10 %
Common Ball, American ..... $1.10 @ $1.15
Bartholomew's, Nos. 25, 27, 30 ..... dis 50&10@60&5 %
Bartholomew's, Nos. 117 118 ,119 ..... dis 70 @ 70&5 %
Amidon's Parker's Imp'd Plat'n ..... dis 75&10 @ 80 %
Amidon's Barker's Imp. Nickeled ..... dis 65&10 @ 70 %
Amidon's Ratchet ..... dis 75&10 @ 80 %
Amidon's Eclipse Ratchet ..... dis 60 %
Amidon's Globe Jawed ..... dis 40&40&10 %
Amidon's Corner Brace ..... dis 40 @ 40&10 %
Amidon's Universal ..... 8 in., $2.10; 10 in., $2.25
Amidon's Buffalo Ball ..... $1.10 @ $1.15
P. S. & W ..... dis 50&10 %

Brackets.
Shelf, plain, Sargent's list ..... dis 55&10 @ 55&10&10 %
Shelf, fancy, Sargent's list ..... dis 60&10 @ 60&10&10 %
Reading, plain ..... dis 60&10 @ 60&10&5 %
Reading, Rosette ..... dis 60&10 @ 60&10&10 %

Bright Wire Goods. ..... dis 87½ @ 87½&10 %

Broilers.

Inch.	9	10	9 x 11
Per doz.	$4.50	5.50	6.50

Buckets.—See Well Buckets and Pails.

Bull Rings.—Union Co., Nut ..... dis 55 %
Sargent's ..... dis 66⅔&10 @ 70&5 %
Hotchkiss' low list ..... dis 30 %
Humason, Beckley & Co.'s ..... dis 70 %
Peck, Stow & W. Co.'s ..... dis 50&10 @ 50&10&10 %
Ellrich Hdw. Co., White Metal, low list. dis 50@50&10 %

Butcher's Cleavers.
Bradley's ..... dis 25 @ 30
L. & L. J. White ..... dis 20&25 %
Beatty's.

2	3	4	5	6	7	8
$16.50	19.00	21.50	24.00	27.00	30.00	33.50	36.50

New Haven Edge Tool Co.'s ..... dis 40
P. S. & W ..... dis 33⅓&5@33⅓&10

Butts.
Brass—
Wrought Brass ..... dis 70@70&10 %
Cast Brass, Tiebout's ..... dis 33⅓ %
Cast Brass, Corbin's Fast ..... dis 33⅓&10 %
Cast Brass, Loose Joint ..... dis 33⅓&10 %

Cast Iron—
Fast Joint, Narrow ..... dis 50&10
Fast Joint, Broad ..... dis 55&10
Loose Joint
Loose Joint, Japanned
Loose Joint, Jap. with Acorns
Parliament Butts
Mayer's Hinges
Loose Pin, Acorns
Loose Pin, Acorns, Japanned
Loose Pin, Acorns, Jap, Pltd. Tips
} ..... dis 70&10

Wrought (Steel)—
Fast Joint, Narrow ..... dis 70&10 %
Fast Joint, Lt. Narrow ..... dis 70&10 %
Fast Joint, Broad ..... dis 70&10 %
Loose Joint, Broad ..... dis 70&10 %
Table Butts, Back Flaps, &c. ..... dis 70&10 %
Inside Blind, Regular ..... dis 70&10 %
Inside Blind, Light ..... dis 70&10 %
Loose Pin ..... dis 70&10 %
Bronzed Wrought Butts ..... dis 40&10@40&10&5 %

Calipers.—See Compasses.

Calks, Toe.
Gautier ..... ₱ ₺ 5½@6¢
Dewicks ..... ₱ ₺ 5½@6¢

Can Openers.
Messenger's Comet ..... ₱ doz $3.00, dis 25 %
American ..... ₱ gross $3.00
Duplex ..... ₱ doz 25¢, dis 15 @ 20 %
Lyman's ..... ₱ doz $3.75, dis 20 %
No. 4, French ..... ₱ doz $2.25, dis 55 @ 60 %
No. 5, Iron handle ..... ₱ gross $6.00, dis 45 @ 50 %
Eureka ..... ₱ doz $2.50, dis 10 %
Sardine Scissors ..... ₱ doz $2.75@$3 00 %
Star ..... ₱ doz $2.75 %
Sprague, No. 1, $2; 2, $2.25; 3, $2.50 ..... dis 50&10&10 %

World's Best, ₩ gross, No. 1, $12.00; No. 2, $24.00, No. 3, $36.00.....dis 50&10 %
Universal.....₩ doz $3.00, dis 35&5 %
Domestic.....₩ doz $2.50, dis 45 %
Champion.....₩ doz $2.00, dis 50 %

Cards.
Horse and Curry.....dis 10&10 @ 10&10&10 %
Cotton.....New list, Aug., 1883, dis 10 @ 10&10 %
Wool..... " " " dis 10 @ 10&10 %

Carpet Stretchers.
Cast Steel, Polished.....₩ doz $2.25
Cast Iron, Steel Points.....₩ doz 80¢
Socket.....₩ doz $1.75
Bullard's.....dis 25 @ 25&10 %

Carpet Sweepers.
Bissell No. 5.....₩ doz $17.00
Bissell No. 7 New Drop Pan.....₩ doz $19.00
Bissell Grand.....₩ doz $36.00
Grand Rapids.....₩ doz $24.00
Crown Jewel.....No. 1, $18; No. 2, $19; No. 3, $20
Magic.....₩ doz $15.00
Jewel.....₩ doz $17.00
Improved Parlor Queen, Nickeled Trimmings.....
₩ doz $27.00
Improved Parlor Queen, Japanned Trimmings.....
₩ doz $24.00
Excelsior.....₩ doz $22.00
Garland.....₩ doz $18.00
Parlor Queen.....₩ doz $24.00
Housewife's Delight.....₩ doz $15.00
Queen.....₩ doz $16.00
Queen, with band.....₩ doz $18.00
King.....₩ doz $30.00
Weed Improved.....₩ doz $18.00
Hub.....₩ doz $16.00
Cog Wheel.....₩ doz $16.00

Cartridges.—See Ammunition.

Casters.
Bed.....} New list:
Plate.....} Brass...dis 55 @ 55&5 %
Shallow Socket.....} Others..dis 60 @ 60&5 %
Deep Socket.....40&10 %
Yale Casters, list May, 1884.....dis 30&10&40 %
Yale, Gem.....dis 60@60&5 %
Martin's Patent (Phœnix).....dis 45&10 @ 50 %
Payson's Anti-friction.....dis 60 @ 60&10 %
"Giant" Truck Casters.....dis 10 @ 10&5 %
Stationary Truck Casters.....dis 45&10

Cattle Leaders.
Humason, Beckley & Co.'s.....dis 70 %
Sargent's.....dis 60%&10 %
Hotchkiss.....dis 80 %
Peck Stow & W. Co.....dis 50&10 %

Chain.
Trace, 6¼-10-2, exact sizes, ₩ pair, $1 05 } dis 50&10@
Trace, 6¼-10-3, exact sizes, ₩ pair, .92 } 50&10&5 %
Trace 7-10-2, exact sizes...₩ pair, 1.11
NOTE.—Traces, "Regular" sizes 3¢ per ₩ pair less than exact.
Log, Fifth, Stretcher, and other fancy Chains, list Nov. 1, 1884.....dis 50&10 @ 50&10&5 %
American Coil 3-16 ¼ 5-16 ⅜ 7-16 ½ ⅝ ⅝
In cask lots. 8.75 6.25 5.00 4.50 4.40 4.00 3.75 3.50
Less than cask lots, add ¼@½¢ ₩ ℔.
German Coil, list of June 20, 1887.....dis 50&10&5@60 %
Ger. Halter Chain, list of June 20, 1887.....
dis 50&10&5@60 %
Covert Halter, Hitching and Breast.....dis 50&2 %
Covert Traces.....dis 35@2 %
Oneida Halter Chain.....dis 60 @ 60&5 %
Galvanized Pump Chain.....₩ ℔ 5½¢ @ 6¢
Jack Chain, Iron.....dis 70&10 @ 75 %
Jack Chain, Brass.....dis 65 @ 70 %

Chalk.—White.....₩ gro 50¢
Red.....₩ gro 70¢
Blue.....₩ gro 85¢
White Crayons.....₩ gro 12½ @ 12½ dis 10¢

Chalk Lines.—See Lines.

Chisels.
Socket Framing and Firmer—
P., S. & W.....} dis 75&5 @
New Haven and Middlesex.....} 75&10 %
Mix.....}
Ohio Tool Co.....
Buck Bros.....dis 70 %
Merrill.....dis 60&10@60&10&5 %
L. & I. J. White.....dis 30 @ 30&5 %
Witherby and Douglass.....dis 75 @ 75&5 %
Tanged Firmers.....dis 40&10 %
Tanged Firmers, Butcher's.....$4.75 @ $5.00
Tanged Firmers, Spear & Jackson's.....$5.00 to $
Tanged Firmers, Buck Bros.....dis 30 %
Cold Chisels, ₩ ℔.....16¢ @ 19¢

Chucks.
Beach Patent.....each, $8.00, dis 20 %
Morse's Adjustable.....each, $7.00, dis 20 @ 20&5 %
Danbury.....each, $6.00, dis 30 @ 30&5 %
Syracuse, Bals Pat.....dis 25 %

Clamps.
Providence Tool Co.'s Wrought Iron.....dis 25 %
Adjustable, Gray's.....dis 20 %
Adjustable, Lambert's.....dis 20 %
Adjustable, Snow's.....dis 40&5 %
Adjustable, Hammer's.....dis 15 %
Adjustable, Stearns'.....dis 30&10 %
Stearns' Adjustable Cabinet and Corner...dis 20&10 %
Cabinet, Sargent's.....dis 60%&10 %
Carriage Makers', Sargent's.....dis 70&10 %
Eberhard Mfg. Co.....dis 40&5 @ 40&10 %
Warner's.....dis 40&10 @ 40&10&5 %
Saw Clamps.....See Vises

Clips.
Norway, Axle, ¼ & 5-16.....dis 55&5&5
Second grade Norway Axle, ¼ & 5-16.....dis 65&5
Superior Axle Clips.....dis 60%&5 @ 60%&5&5 %
Norway Spring Bar Clips, 5-16.....dis 60&5&5
Wrought-Iron Felloe Clips.....₩ ℔ 5½¢
Steel Felloe Clips.....₩ ℔ 5¢
Baker Axle Clips.....dis 25 %

Cockeyes......dis 50 %
Cocks, Brass.—Hardware list.....dis 40&10&2 %

Coffee Mills.
Box and Side. List revised Jan. 1, 1888.....dis 50&2 %
American, Enterprise Mfg Co.....dis 20&10@30 %
The "Swift," Lane Bros.....dis 20&10 %

Compasses, Dividers, &c.
Compasses, Calipers, Dividers.....dis 70@70&10 %
Bemis & Call Co.'s Dividers.....dis 60&5 %
Bemis & Call Co.'s Compasses & Calipers.....dis 50&5 %
Bemis & Call Co.'s Wing & Inside or Outside.dis 50&5 %
Bemis & Call Co.'s Double.....dis 60 %
Bemis & Call Co.'s (Call's Patent Inside).....dis 30 %
Excelsior.....dis 50 %
J. Stevens & Co.'s Calipers and Dividers...dis 25&10 %
Starrett's Spring Calipers and Dividers.dis 25&10&.0 %
Starrett's Lock Calipers and Dividers.....dis 25.1 0 %
Starrett's Combination Dividers.....dis 25&10 %

Coopers' Tools.
Bradley's.....dis 20 %
Barton's.....dis 20@20&5 %
L. & I. J. White.....dis 20&5 %
Albertson Mfg. Co.....dis 25 %
Beatty's.....dis 40 @ 40&5 %
Sandusky Tool Co.....dis 30 @ 30&5 %

Corkscrews.
Humason & Beckley Mfg. Co.....dis 40 @ 40&10 %
Clough's Patent.....dis 33⅓ @ 33⅓&5 %
Howe Bros. & Hulbert.....dis 35 %

Corn Knives and Cutters.
Bradley's.....dis 10 %
Wadsworth's.....dis 25 %

Cradles.—Grain.....dis 50&2 %
Crow Bars.—Cast Steel.....₩ ℔ 4¢
Iron, Steel Points.....₩ ℔ 3½¢

Curry Combs.
Fitch's.....dis 50&10 @ 50&10&10 %
Rubber.....₩ doz $10.00, dis 20 %
Perfect.....dis %

Curtain Pins.—Silvered Glass.....net
White Enamel.....net

Cutlery.
Beaver Falls and Booth's.....dis 33⅓ %
Westenholme.....$7.75 to $

Dampers, &c.
Dampers, Buffalo.....dis 50 %
Buffalo Damper Clips.....dis 50 %
Crown Damper.....dis 40 %
Excelsior.....dis 40&10 %

Dividers.—See Compasses.

Dog Collars.
Embossed Gilt, Pope & Stevens' list.....dis 30&10 %
Leather, Pope & Stevens' list.....dis 40 %
Brass, Pope & Stevens' list.....dis 40 %

Door Springs.
Torrey's Rod, regular size.....₩ doz $1.30
Gray's.....₩ gro, $20.00, dis 20 %
Bee Rod.....₩ gro, $20.00, dis 20 %
Warner's No. 1, ₩ doz, $2.50; No. 2, $3.30, dis 40&10&5 %
Gem (Coil), list April 19, 1888.....dis 10 %
Star (Coil), list April 19, 1886.....dis 20 %
Victor (Coil).....dis 60 @ 60&10 %
Champion (Coil).....dis 60&10 @ 60&10&10 %
Philadelphia.....6 in., $5.00; 8 in. $7.75, dis 30 %
Cowell's.....No. 1, ₩ doz $18.00; No. 2, $15.00, dis 50 %
Rubber, complete.....₩ doz $4.50, dis 55&10 %
Hercules.....dis 50 %
Shaw Door Check and Spring.....dis 25 @ 30 @ 35 %
Elliott's Door Check and Spring.....dis 25 %

Drawing Knives.
P., S. & W.....} dis 75&5 @
Mix.....} 75&10 %
New Haven and Middlesex.....}
Merrill.....dis 60&10&10 %
Witherby and Douglass.....dis 75@75&5 %
Watrous.....dis 15&10 @ 25 %
L. & I. J. White.....dis 20&5 %
Bradley's.....dis 35 %
Adjustable Handle.....dis 25 @ 33⅓ %
Wilkinson's Folding.....dis 25 @ 25&5 %

Drills and Drill Stocks.
Blacksmiths'.....each, $1.75
Blacksmiths' Self-Feeding.....each, $7.50, dis 20 %
Breast, P. S. & W.....dis 40&10 %
Breast, Wilson's.....dis 30&5 %
Breast, Millers Falls.....each, $3.00 dis 25 %
Breast, Bartholomew's... each, $2.50, dis 25&10 @ 40 %
Ratchet, Merrill's.....dis 20 @ 20 & 5 %
Ratchet, Ingersoll's.....dis 25 %
Ratchet, Parker's.....dis 20 @ 20&5 %
Ratchet, Whitney's.....dis 20&10 %
Ratchet, Weston's.....dis 20@25 %
Ratchet, Moore's Triple Action.....dis 25 @ 30 %
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....dis 20&10 %
Wilson's Drill Stocks.....dis 1' %
Automatic Boring Tools.....each, $1.75 @ $1.85
Twist Drills—
Morse.....dis 50&10&5 %
Standard.....dis 50&10&5 %
Syracuse.....dis 50&10&5 %
Cleveland.....dis 50&10&5 %
Williams.....dis 50&10&10 %

Drill Bits.—See Augers and Bits.
Drill Chucks.—See Chucks.
Dripping Pans.—Small sizes.....₩ ℔ 6¼¢
Large sizes.....₩ ℔ 6¼ ¢

Egg Beaters.
Dover.....₩ doz., $2.00
National.....₩ doz $4.50, dis 33⅓ %
Family (T. & S. Mfg. Co.).....₩ gro, $17.00@$18.00
Kingston (Standard Co.).....₩ gro, $6.50
Acme (Standard Co.).....₩ gro, $6.00
Duplex (Standard Co.).....₩ gro, $15.00
Duplex, extra heavy.....₩ doz extra $5.00
Rival (Standard Co.).....₩ gro, $12.00
Triumph (T. & S. Mfg. Co.).....₩ gro, $ 10.50@$11.50
Advance No. 1.....₩ gro $10.50
Advance, No. 2.....₩ gro $10.00
Bryant's.....₩ gro $15.00
Ayres' Spiral.....₩ gro $5
Double (Hamblin & Russell Mfg Co.).....₩ gro, $16 20
Easy (Hamblin & Russell Mfg. Co.).....₩ gro, $14.00
Triple (Hamblin & Russell Mfg. Co.).....₩ gro, $16.20
Spiral (Hamblin & Russell Mfg. Co.).....₩ gro, $4.50
Paine, Dieh & Co's.....₩ gro $24.00

Egg Poachers.
Buffalo Steam Egg Poachers, ₩ doz., No. 1, $6.00; No. 2, $9.00.....dis 25 %

Electric Bell Sets.—Wollensak's.....dis 15 %
Bigelow & Dowse.....dis 20 %

Emery.

	No. 4 to 46 gr.	No. 54 to 150 gr.	Flour, CF FF.
Kegs, ₩ ℔	4 ¢	5 ¢	2½¢
¼ kegs, ₩ ℔	4½¢	5½¢	2¾¢
⅛ kegs, ₩ ℔	4½¢	5½¢	3 ¢
10-℔ cans, 10 in case	6 ¢	6½¢	5 ¢
10-℔ cans, less than 10	10 ¢	10 ¢	7½¢

Enameled and Tinned Ware.—See Hollow-Ware.

Escutcheon Pins.
Iron, list Nov. 11, 1885.....dis 50&10 @ 50&10&5
Brass.....dis 60 @ 60&5 %

Escutcheons.
Door Lock.....Same discounts as Door Locks
Brass Thread.....dis 60 @ 60&10 %
Wood.....dis 25 %

Faucets.
Fenn's.....dis 40 %
Bohren's Patent Rubber Ball.....dis 25 %
Fenn's Cork Stops.....dis 33⅓ %
Star.....dis 60 @ 60&5 %
Frary's Patent Petroleum.....dis 40&5&2 %
Weed's Patent Key.....dis 50&10 %
Anchor Cork.....dis 45 %
Metallic Key, Leather Lined...dis 60&10 @ 60&10&10 %
Cork Lined.....dis 70&5 @ 70&10 %
Burnside's Red Cedar.....dis 50 %
Burnside's Red Cedar, bbl. lots.....dis 50&10 %
J. Sommer's Peerless Best Block Tin Key.....dis 40 %
J. Sommer's IXL, 1st quality, Cork Lined.....dis 50 %
J. Sommer's Diamond Lock.....dis 40 %
J. Sommer's Perfection, Fla. Red Cedar.....dis 50 %
J. Sommer's Goodenough Cedar.....dis 60 %
Self-Measuring, Enterprise...₩ doz $36.00—dis 30&10 %
Self-Measuring, Lane's.....₩ doz $36.00—dis 25&10 %
Self-Measuring, Victor.....₩ doz $36.00—dis 25&10 %

Felloe Plates......₩ ℔ 6 @ 6½¢

Fifth Wheels.—Derby and Cincinnati .dis 45&5 %

Files.
Domestic—
Nicholson Files, Rasps, &c.....dis 60&5 @ 60&10 %
Nicholson (X. F.) Files.....dis 25 %
Nicholson's Royal Files (Seconds) dis 75 (extra prices on certain sizes.)
Other makers, best brands.....dis 60&5 @ 60&10&5 %
Fair brands.....dis 60&10&10 @ 70 %
Second quality.....dis 70&5 @ 70 %
Heller's Horse Rasps.....dis 50&7½ @ 50&10 %
McCaffrey's Horse Rasps.....dis 50&10 %
Imported—
J. & Riley Carr.....List, April 1, 1883, dis 15 %
J. & Riley Carr Horse Rasps.....dis 10 %
Moss & Gamble.....List April 1, 1883, dis 15 %
Butcher.....Butcher's list, dis 20 %
Stubs.....Stubs list, dis 25 @ 30 %
Turton's.....Turton's list dis. 20 @ 25 %
Greaves' Horse Rasps.....American list d 60 %

Fluting Machines.
Knox, 4¼-inch Rolls.....$3.25 each
Knox, 6-inch Rolls.....$3.50 each } dis 35 %
Eagle 3¼-inch Roll.....$2.15, dis 35 %
Eagle, 5¼-inch Roll.....3.85, dis 35 %
Crown, 4½ in., $3.50; 6-in., $4.00; 8-in., $6.50 each, dis 35 %
Crown Jewel.....6-in., $3.50 each, dis 35 %
American, 5-in., $3; 6-in., $3.40; 7-in., $4.50 each, dis 35 %
Domestic Fluter.....$1.50 each, net
Geneva Hand Fluter, White Metal..₩ doz $12, dis 25 %
Crown Hand Fluter, Nos. 1, $15; 2, $12.50; 3, $10, dis 30 %
Shepard Hand Fluter, No. 85.....₩ doz $15.30, dis 40 %
Shepard Hand Fluter, No. 110.....₩ doz $11, dis 40 %
Shepard Hand Fluter, No. 95.....₩ doz $8, dis 40 %
Clark's Hand Fluter.....₩ doz $15.00, dis 35 %
Combined Fluter and Sad Iron...₩ doz $15.00, dis 30 %
Buffalo.....₩ doz $10.00 dis 10 %

Fluting Scissors......dis 45 %

Fly Traps.
Paragon.....₩ doz $1.50 @ 1.75

Fodder Squeezers.
Blair's.....₩ doz $2.00
Blair's, "Climax".....₩ doz $1.25

Forks.—Hay, Manure, &c. Asso. list.....dis 65&5 %
Hay, Manure, &c., Phila. list.....dis 60 @ 60&5 %
Plated, see Spoons.

Freezers, Ice Cream.
Buffalo Champion.....dis 60&10&5 %
Shepard's Lightning.....dis 65 %
White Mountain.....dis 60 %

Fruit and Jelly Presses.
Enterprise Mfg. Co.....dis 20&10 @ 30 %
Henis.....₩ doz $4.50
P. D. & Co.....₩ doz $4.50
Shepard's Queen City.....dis 40 %

Fry Pans.
High List.....dis 75&5 @ 75&10 %

No.	0	1	2	3	4	5	6	7	8
₩ doz.	$3.75	4.70	5.30	5.95	6.55	7.50	8.75	10.00	11.25

Low List.....dis 65&10 %

No	0	1	2	3	4	5	6	7	8
₩ doz.	$3.00	3.75	4.25	4.75	5.25	6 00	7.00	8.00	9.00

Fuse......₩ 1000 ft.
Common Hemp Fuse, for dry ground.....$2.70
Common Cotton Fuse, for dry ground.....2.85
Single Taped Fuse, for wet ground.....4.75
Double Taped Fuse, for very wet ground.....6.00
Triple Taped Fuse, for very wet ground.....7.25
Small Gutta Percha Fuse, for water.....7.50
Large Gutta Percha Fuse, for water.....12.00

Gauges.
Marking Mortise, &c.....dis 60&10 %
Starrett's Surface, Center and Scratch.....dis 25&10 %
Wire, low list.....dis 10&10 %
Wire, Wheeler, Madden & Co.....dis 10 %
Wire, Morse's.....dis 50 @ 50&5 %
Wire, Brown & Sharpe's.....dis 10 @ 20 %

Gimlets.—Nail and Spike.....dis 50&10&5 %
"Eureka" Gimlets......dis 40&10 %
"Diamond" Gimlets......₩ gross $5.00
Double Cut, Shepardson's.....dis 45 @ 45&5 %
Double Cut, Ives'.....dis 60 @ 60&5 %
Double Cut, Douglass'.....dis 40&10 %
"Bee".....₩ gross $12, dis 25 @ 25&5 %

Glue.—Le Page's Liquid.....dis 25 @ 25&5 %
Upton's Liquid.....dis 35 %
W. N. Le Page's Improved Liquid Glue.dis 25 @ 25&5 %

Glue Pots.
Tinned and Enameled.....dis 40&5 @ 40&10%
Family, Howe's "Eureka".....dis 40 %
Family, L. F. & C.'s "Handy".....dis 50 %

Grindstones.
Small, at factory.....₩ ton $7.50 @ 9.0

Grindstone Fixtures.
Sargent's Patent.....dis 70&10 %
Reading Hardware Co.....dis 30&10 %

Hack Saws.—See Saws.

Halters.—Covert's, Rope, ¼-in. Jute.....dis 50&2 %
Covert's, Rope, ¼-in., Hemp.....dis 40&2 %
Covert's Adj. Rope Halters.....dis 40&2 %
Covert's Jute Horse and Cattle Ties.....dis 50&2 %
Covert's Jute Horse and Cattle Ties.....dis 60&10&2 %

Hammers.
Handled Hammers.
Maydole's.....List Dec. 1, 1885, dis 25 @ 25&1 0%
Buffalo Hammer Co.....} List Jan. 15, '87
Humason & Beckley.....} Dis. 50 @ 50&
Atha Tool Co.....} 10 %
Fayette R. Plumb.....dis 40&10 @ 50
C. Hammond & Son.....dis 40&10@50
Verree.....dis 0 %
Magnetic Tack, Nos. 1, 2, 3, $1.35, 1.50 & 1.75, dis 30&10 %
Nelson Tool Works.....dis 40&10 %
Warner & Nobles.....dis 20 @ 25 %
Peck, Stow & Wilcox.....dis 40 %
Sargent's.....dis 33⅓&10 %
Heavy Hammers and Sledges—
3 ℔ and under.....₩ ℔ 40¢ } dis 70 & 10
3 to 5 ℔.....₩ ℔ 36¢ } @ 75 %
Over 5 ℔.....₩ ℔ 30¢
Wilkinson's Smiths'.....10½¢ @ 11¢ ₩ ℔

Hand Cuffs and Leg Irons.
Providence Tool Co., Hand Cuffs, $15.00 ₩ doz...dis 10%
Providence Tool Co. Leg Irons, $25.00 ₩ doz....dis 10 %
Tower's.....dis 25 %
Daley's Improved Hand Cuffs: 2 Hands, Polished, ₩ doz, $45; Nickeled, $57; 3 Hands, Polished, ₩ doz, $72; Nickeled, $84.....dis 25 %

Hangles.
Iron, Wrought or Cast.—
Door or Thumb.

Nos.....	0	1	2	3	4
Per doz.	$0.90	1.00	1.18	1.35	1.50

.....dis 60&10&10
Roggin's Latches.....₩ doz. 30¢ @ 3
Bronze Iron Drop Latches.....₩ doz. 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88.....net
Barn Door.....₩ doz. $1.40, dis 10&10 %
Chest and Lifting.....dis 70 %
Handles, Wood—
Saw and Plane.....dis 40&10 @ 40&10&5 %
Hammer, Hatchet, Axe, Sledge, &c.....dis 35 %
Brad Awl.....₩ gross $2.00
Hickory Firmer Chisel, assorted.....₩ gross 4.50
Hickory Firmer Chisel, large.....₩ gross 5.00
Apple Firmer Chisel, assorted.....₩ gross 5.00 } Dis
Apple Firmer Chisel, large.....₩ gross 6.00 }
Socket Firmer Chisel, assorted.....₩ gross 3.00
Socket Framing Chisel, assorted.....₩ gross 5.00
J. B. Smith Co.'s Pat. File.....dis 50 %
File, assorted.....₩ gross 2.75 } dis 40 @
Auger, assorted.....₩ gross 5.00 } 40&10 %
Auger, large.....₩ gross 7.00 }
Patent Auger, Ives'.....dis 30&10 %
Patent Auger, Douglass'.....₩ set $1.25 net
Patent Auger, Swan's.....₩ set $1.00 net
Hoe, Rake, Shovel, &c.....dis 50&10 %
Cross Cut Saw Handles—
Atkins' No. 1 Loop, ₩ pair, 20¢ No. 2, 22¢; No. 2 and No. 4 Reversible, 22¢.
Boynton's Loop Saw Handles.....50¢, dis 60 %
Champion.....15¢

Hangers.
Barn Door, old patterns.....dis 60&10&10 @ 70 %
Barn Door, New England.....dis 60&10&10 @ 70 %
Samson Steel Anti-Friction.....dis 5% %
Orleans Steel.....dis 5% %
Hamilton Wrought Wood Track.....dis 5% %
U. S. Wood Track.....dis 5% %
Champion.....dis 60&10 %
Rider and Wooster, Medina Mfg. Co.'s list..dis 70 %
Climax Anti-Friction.....dis 55 %

Climax Steel Anti-Friction.... dis 50 %
Zenith for Wood Track.... dis 55 %
Reed's Steel Arm.... dis 50 %
Challenge Barn Door.... dis 50 %
Sterling Improved (Anti-Friction).... dis 75&10 %
Victor, No. 1, $15; No. 2, $16.50; No. 3, $18.... dis 50&5 %
Cheritree.... dis 50&10 %
Kidder's.... dis 50&10 @ 60 %
The "Boss".... dis 60 %
Best Anti-Friction.... dis 60 %
Duplex (Wood Track).... dis 60 %
Terry's Patent.... ₩ doz. pr., 4 in. $10; 5 in., $12.... dis 50&5 %
Cronk's Patent....No. 4, $12; No. 5, $14.40; No. 6, $18.... dis 50&10 @ 60 %
Wood Track Iron Clad.... ₩ ft. 10d., dis 50&15 @ 60 %
Carrier Steel Anti-Friction.... dis60 @ 50&5 %
Architect.... ₩ set $6.00, dis 20 %
Eclipse.... dis 20&10
Feltz.... ₩ set $4.50, dis 20 %
Richards'.... dis30@30&10 %
Lane's Steel Anti-Friction.... dis 40&10 %
The Ball Bearing Door Hanger.... dis 20&10 @ 25&10 %
Warner's Patent.... dis 20@20&10 %
Stearns' Anti-Friction.... dis 20 @ 20&10 %
Stearns' Challenge.... dis 25&10 @ 25&10&10 %
Faultless.... dis 40 @ 40&5 %
American.... ₩ set $6; dis 20&10 %
Rider & Wooster, No. 1, 63¾#; No. 2, 75#.... dis 40 %
Paragon, Nos. 1, 2 and 3.... dis 40&10 %
Paragon, Nos. 5, 5¼, 7 and 8.... dis 20&10 %
Crescent.... dis 60@60&10 %
Nickel, Cast Iron.... dis 50 %
Nickel, Malleable Iron and Steel.... dis 40 %
Scranton Anti Friction Single Strap.... dis 33⅓ %
Scranton Anti-Friction Double Strap.... dis 40 %
Universal Anti-Friction.... dis 40 %
Wild West, 4 in. wheel, $15; 5 in. wheel, $21.... dis 45 %
Star.... dis 4 &10 @ 40&10&5 %
May.... dis 50&5 @ 60&10 %

Harness Snaps.—See Snaps.

Hatchets.—List Jan. 1, 1886.

Isaiah Blood.... dis 35 @ 40%
Hunt's Shingling Lath and Claw.... dis 40&5 %
Hunt's Broad.... dis 40 %
Buffalo Hammer Co.... dis 40&10@50 %
Hurd's.... dis 40&10 @ 50 %
Fayette R. Plumb.... dis 40&10 @ 50 %
Wm. Mann, Jr., & Co.... dis 50 @ 50&5%
Underhill Edge Tool Co.... dis 40&5 @ 40&10 %
Underhill's Haines and Bright goods.... dis 33⅓ %
C. Hammond & Son.... dis 40&10 @ 50 %
Simmons.... dis 40&10 @ 50 %
Peck's.... dis 40&10 @ 40&10&5 %
Kelly's.... dis 50@50&5 %
Sargent & Co.... dis 50 %
Ten Eyck Edge Tool Co.... dis 40&10@40&10&5 %
Collins, following list.... dis 40 %
Shingling, Nos. 1 2 3.... ₩ doz $5.50 $6.00 $6.50
Claw, Nos. 1 2 3.... ₩ doz 6.00 6.50 7.00
Lathing Nos. 1 2 3.... ₩ doz 5.50 6.00 6.50

Hay Knives.

Lightning.... Mfrs. price ₩ doz $18, dis 25 % Jobber's Extras
Electric.... ₩ doz $17 } dis 30 @
Gem.... ₩ doz $18 } 30&5%
Wadsworth's.... dis 40&7½ @ 40&10 %
Carter's Needle.... ₩ doz $11.50 @ $12.00
Heath's.... ₩ doz $13.50 @ $14.00

Hinges.

Wrought Iron Hinges—

Strap and T.... dis 70&10&5 @ 70&10&10 %
Screw Hook and Strap.... { 6 to 12 in. ₩ ₩.... 3½¢ ; 14 to 20 in. ₩ ₩.... 3½¢ ; 22 to 36 in. ₩ ₩.... 2½¢
Heavy Welded Hook { 6 to 12 in. ₩ ₩.... 3½¢ ; 14 to 20 in. ₩ ₩.... 3½¢ ; 22 to 36 in. ₩ ₩.... 2½¢
Screw Hook and Eye.... { ⅝ in.... ₩ doz $1.50 ; ¾ in.... ₩ doz $2.45 ; ⅞ in.... ₩ doz $3.80 } dis 10%
Rolled Blind Hinges, Nos 32 and 34.... dis 50&10 %
Rolled Blind Hinges, Nos. 233 and 234.... dis 55&10 %
Rolled Plate.... dis 70&10 %
Rolled Raised.... dis 70&10 %
Plate Hinges { 8, 10 & 12 in., ₩ ₩.... 5¢ ; "Providence" } over 12 in., ₩ ₩.... 4¢

Spring Hinges—

Geer's Spring and Blank Butts.... dis 40 %
Union Spring Hinge Co.'s list, March. 1886.... dis 20 %
Acme and U. S.... dis 30 %
Empire and Crown.... dis 20 %
Hero and Monarch.... dis 50 %
American, Gem, and Star, Japanned.... dis 20 %
American, Gem, and Star, Bronzed.... net
Oxford, Bronze and Brass.... net
Barker's Double Acting.... dis 20&10 %
Union Mfg. Co.... dis 25 %
Bommer's.... dis 30 %
Buckman's.... dis 10@20 %
Chicago.... dis 30 %

Gate Hinges—

Western.... ₩ doz $4.40, dis 55 %
N. E.... ₩ doz $7.00, dis 55 %
N. E. Reversible.... ₩ doz $5.20, dis 55&10 %
Clark's, Nos. 1 2 3.... dis 60&10&5 %
N. Y. State.... ₩ doz $5.00, dis 55&10 %
Automatic.... ₩ doz $12.50, dis 50 %
Common Sense.... ₩ doz pair $4.50, dis 50 %
Seymour's.... dis 45&10 %
Shepard's.... dis 60&10&5 %
Reed's Latch and Hinges.... ₩ doz sets $12, dis 50 %

Blind Hinges—

Parker.... dis 75&2 %
Palmer.... dis 50&5&10 %
Seymour.... dis 70&2 %
Nicholson.... dis 45&10 %
Huffer.... dis 50 %
Clark's, Nos. 1, 3, 5, 40 and 50.... dis 75&10&5&50 %
Clark's Mortise Gravity.... dis 50 %
Sargent's, Nos. 1, 3, 5, 11, 13.... dis 75&10&75&10&5 %
Sargent's, No. 12.... dis 75&10&10 %
Reading's Gravity.... dis 75&10 @ 75&10&5 %
Shepard's Noiseless Niagara Buffalo, Champion, Steamboat, Clark's Old Pattern and Clark's Tip Pattern.... dis 75&10&5 %
Shepard's O. S., Lull & Porter.... dis 75&10 %
Shepard's Acme, Lull & Porter.... dis 75&5 %
Shepard's Queen City Reversible.... dis 75 %
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3.... dis 75&10&2½ %
North's Automatic Blind Fixtures, No. 2, for Wood, $10.50; No. 3, for Brick, $13.50.... dis 25&2 %

Hoes.

Handled—

Garden, Mortar, &c.... dis 65&5 %
Planter's, Cotton, &c.... dis 65&5 %
Warren Hoe.... dis 60 %
Magic.... ₩ doz $4.7[illegible]

Eye—

D. & H. Scovill.... dis 20 %
Lane's Crescent Scovil Pattern.... dis 45 %
Lane's Crescent Planters Pattern.... dis 45 & 5 %
Lane's Razor Blade, Scovil Pattern.... dis 30 %
Maynard, S. & O. Pat.... dis 45&5 %
Sandusky Tool Co., " " .... dis 60 %
Hubbard & Co., " " .... dis 60 %
Bare " " .... dis 60 %
Grub.... dis 60 @ 60&10 %

Hog Rings and Ringers.

Hill's Improved Ringers.... ₩ doz. $4.50
Hill's Old Style Ringers.... ₩ doz. $3.00
Hill's Tongs.... ₩ doz. $4.50
Hill's Rings.... ₩ doz boxes, $2.25 @ 2.40
Perfect Rings.... ₩ doz boxes $1.75 @ 2.00
Perfect Ringers.... ₩ doz. $2.50
Blair's Hog Ringers.... ₩ doz. $2.65 @ $2.65
Blair's Hog Rings.... ₩ doz 95¢ @ 1.00
Champion Ringers.... ₩ doz $2.00
Champion Rings, Double.... ₩ doz, $2.25
Brown's Ringers.... ₩ doz, $2.00
Brown's Rings.... ₩ doz. $1.25 @ 1.80

Hoisting Apparatus.

"Moore's" Hand Hoist, with Lock Brake.... dis 20 %
"Moore's" Differential Pulley Block.... dis 40 %

Holders, File and Tool.

Rais Pat.... ₩ doz $4: dis 25 %
Nicholson File Holders.... dis 20 %

Hollow-Ware.

Iron—

Stove Hollow-Ware. Ground.... dis 60&10@60&10&5 %
Stove Hollow-Ware. Unground.... dis 70&5@70&10 %

Enameled and Tinned Hollow-Ware—

Kettles.... dis 70 @ 70&5 %
Oval Boilers, Saucepans & Glue Pots.... dis 40&5 @ 40&10 %
Gray Enameled Ware.... dis 10 @ 40&5 %
Agate and Granite Ware.... dis 25 %
Rustless Hollow-Ware.... dis 50 @ 50&5 %

Galvanized Tea-Kettles—

Inch.	6	7	8	9
Each	55¢	60¢	65¢	75¢

Silver Plated—4 mo. or 5 % cash in 30 days.

Reed & Barton.... dis 40&5 %
Meriden Brittania Co.... dis 40&5 %
Simpson, Hall, Miller & Co.... dis 40&5 %
Rogers & Brother.... dis 40&5 %
Hartford Silver Plate Co.... dis 40&5&5 %
William Rogers Mfg. Co.... dis 40&5&5 %

Hooks.

Cast Iron—

Bird Cage. Sargent's list.... dis 60&10&10%
Bird Cage. Reading.... dis 60&10&10 %
Clothes Line. Sargent's list.... dis 60&10&10 %
Clothes Line. Reading list. dis 60&10 @ 60&10&10 %
Ceiling. Sargent's list.... dis55&10&10 %
Harness, Reading list.... dis 55&10 @ 55&10&10 %
Coat and Hat, Sargent's list.... dis 55&10 @ 60&10 %
Coat and Hat, Reading.... dis 60&10 @ 50&10&10 %

Wrought Iron—

Cotton.... ₩ dos $1.25
Cotton Pat. (N. Y. Mallet & Handle W'ks).... dis 30 %
Tassel and Picture (T. & S. Mfg. Co.).... dis 50 %
Wrought Staples, Hooks, &c.... See Wrought Goods
Bench Hooks.... See Bench Stops

Wire—

Wire Coat and Hat, Gem, list April, 1886.... dis 45 %
Wire Coat and Hat. Miles', list April, 1886.... dis 45
Indestructible Coat and Hat.... dis. 45 %
Wire Coat and Hat, Standard.... dis 45 %
Belt.... dis 75&10 @ 80 %
Grass.... ₩ doz $2.00
Bush.... dis 55 @ 60 %
Whittree—Patent.... dis 55 %
Hooks and Eyes—Malleable Iron.... dis 70 @ 70&10 %
Hooks and Eyes—Brass.... dis 60&10&10 %
Fish Hooks, American.... dis 50 %

Horse Nails.

Nos.	6	7	8	9	10	
Ausable	28¢	26¢	25¢	24¢	23¢	dis 25&10@25&10&10 %
Clinton. Fine	24¢	22¢	21¢	20¢	19¢	dis 40&10 @ 50 %
Essex	28¢	26¢	25¢	24¢	23¢	dis25&10@25&10&10
Lyra	25¢	23¢	22¢	21¢	20¢	dis 40&10&5@50 %
Snowden	25¢	23¢	22¢	21¢	20¢	dis 40&10&5@50 %
Putnam	24¢	22¢	21¢	20¢	19¢	dis 5&10&2½&2½ %
Vulcan	25¢	21¢	20¢	19¢	18¢	dis 12½&5
Northwest'n	25¢	23¢	22¢	21¢	20¢	dis 10&10&5&5
Globe	25¢	21¢	20¢	19¢	18¢	dis 12½&5&5
A. C.	25¢	23¢	22¢	21¢	20¢	dis 25&10 @ 33⅓&5 %
C. B.-K.	25¢	23¢	22¢	21¢	20¢	dis 25&10 @ 33⅓&5
Champlain	28¢	26¢	25¢	24¢	23¢	dis25&10&10 %
New Haven	28¢	26¢	25¢	24¢	23¢	dis25&10@25&10&10 %
Saranac	23¢	21¢	20¢	19¢	18¢	dis 30&10 %
Champion	25¢	23¢	22¢	21¢	20¢	dis 10&10&10
Capewell	28¢	26¢	25¢	24¢	23¢	dis 25&5 @ 35&10
Star	23¢	21¢	20¢	19¢	18¢	dis 10&10@10&10½ %
Anchor	25¢	21¢	20¢	19¢	18¢	dis 35 %
Western	25¢	21¢	20¢	19¢	18¢	dis 40&10 %
Empire Bronzed						1¢ per lb.

Horse Shoes.—See Shoes, Horse.

Hose, Rubber, competition.... 75&10 @ 75&10&5 %
Standard.... dis 70@7 &10 %
Extra.... dis 60 @ 60&10 %
N. Y. R. & P. Co., Para.... dis 3&10 %
N. Y. R. & P. Co., Extra.... dis 50 %
N. Y. R. & P. Co., Dundee.... dis 60&10&5 %

Huskers.

Blair's Adjustable.... ₩ gross $8.00
Blair's Adjustable Clipper.... ₩ gross 7.00

Ice Picks, Chisels, &c.

Am. Ice Chisel Pol'd. .... ₩ doz $3.00, dis 20@20&5 %
National Ice Chisel.... ₩ doz $6.25, dis 20 %
Novelty Ice Breakers.... ₩ doz $6.25, dis 20 %
Dunlap's Ring Picks.... ₩ doz $2.00, dis 15 %
Wood Head Picks, Sargent's.... ₩ doz $1.60, dis 50&10 %
Iron Head Picks, Sargent's.... ₩ doz $1.25, dis 50&10 %
Ice Mallets, Pick in handle.... ₩ doz $2.00, dis 15 %
Ice Axes, Small Cast or Mail.... ₩ doz $1.25, dis 20&10 %
Combination Ice Tools.... ₩ doz $2.00 net
Acme Ice Pick and Tongs.... ₩ gross $15.00, dis 50&10 %
Roger's Lightning Ice Chisel.... ₩ gross $28.50

Ice Tongs.

Champion, S. S. & Co.... ₩ doz $4.00, dis 25&10 %
Family.... ₩ doz $2.75, dis 20@25 %

Jack Screws.—See Screws.

Kettles.

Brass. 7 to 17 in., ₩ ₩	Spun. 24¢	Stamped. 21 ¢
Brass larger than 17 inches, ₩ ₩	26¢	23½¢

Enameled and Tea Kettles.... See *Hollow-Ware*

Lock Asso'n list Dec. 30. 1886.... dis 50&10 @ 60&5 %
Eagle, Cabinet, Trunk and Padlock.... dis 33⅓&2 %
Hotchkiss' Brass Blanks.... dis 40 %
Hotchkiss' Copper and Tinned.... dis 40 %
Hotchkiss' Padlock and Cabinet.... dis 35 %
Ratchet Bed Keys.... ₩ doz $4.00, dis 15 %

Knife Sharpeners.

Parkin's Applewood Handles.... ₩ doz $6.00, dis 40 %
Parkin's Rosewood or Cocoboto.... ₩ doz $9.00, dis 40 %

Knives.

Wilson's Butcher Knives.... dis 20 @ 25 %
Ames' Butcher Knives.... dis 25 %
Nichols' Butcher Knives.... dis 40&10
Ames' Shoe Knives.... dis 20@25 %
Ames' Bread Knives.... ₩ doz $1.50, dis 15 @ 20 %
Moran's Shoe and Bread Knives.... dis 20 %
Hay and Straw.... See Hay Knives
Table and Pocket.... See Cutlery

Knobs.

Door Mineral.... 65@68¢
Door Por. Jap'd.... 75@78¢
Door Por. Por. Nickel.... $2.00 @ 2.25
Door Por. Plated, Nickel.... $2.00 @ 2.25
Drawer, Porcelain.... dis 55&10&10@60&10&10 %
Hemacite Door Knobs, new list.... dis 40&10@50 %
Yale & Towne Wood Knobs, list Dec., 1885.... dis 40 %
Furniture Plain.... 75¢ gross incn. dis 10 %
Furniture, Wood Screws.... dis 25&10 %
Base, Rubber Tip.... dis 70&10&5 %
Picture, Judd's.... dis 60&10&10 @ 70 %
Picture, Sargent's.... dis 70&10 %
Picture, Hemacite.... dis 35&5 %
Shutter, Porcelain.... dis 65&10 %
Carriage, Japanned.... ₩ gross 30¢, dis 60&10 %

Ladies.

Melting, Sargent's.... dis 55&10%
Melting, Reading.... dis 35&10%
Melting, Monroe's Patent.... ₩ doz. $4.00, dis 40%
Melting, P. S. & W.... dis 35&10 @ 40%
Melting, Warner's.... dis 30%

Lawn Mowers.

Standard List.... dis 50&10 %
Enterprise.... dis 60&10 %

Lanterns.

Tubular, Plain, with Guards.... ₩ doz $4.00 @ $4.25
Tubular, Lift Wire, with Guards.... ₩ doz $4.50 @ $4.75
Tubular, Square Plain, with Guards, ₩ doz $4.00 @ $4.25
Tubular, Sq. Lift Wire, with Guards, ₩ doz $4.25 @ $4.50
Without Guards, 25¢ ₩ dozen less.
Police, Small, $6.00; Med. $7.25; Large, $9.75. dis 20@25¢

Lemon Squeezers.

Porcelain Lined, No. 1.... ₩ doz. $6.00, dis 25&30 %
Wood, No. 2.... ₩ doz. $3.00, dis 35 %
Wood, Common.... ₩ doz $1.70 @ 1.75
Dunlap's Improved.... ₩ doz. $3.75, dis 20 ¢
Sammis'.... No. 1, $5; 2, $9; 12, $18 ₩ doz., dis 25&10 ¢
Jennings' "Star".... ₩ doz $2.50
The "Boss".... ₩ doz $2.50
Dean's.... Nos. 1, ₩ doz $6.50; 2, $8.35; 3, $1.00
Little Giant.... dis 60 @ 50&5 %
King.... dis 40&5 %

Lines.

Cotton and Linen Fish, Draper's.... dis 50 %
Draper's Chalk.... dis 60 %
Draper's Mason's Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.. dis 25 %
Cotton Chalk.... dis 55 %
Samson, Cotton, No. 4, $2; No. 4½, $2.50.... dis 10 %
Silver Lake, Braided, Nos. 0, $6.00. No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₩ gross.... dis 25 %
Masons' Linen, No. 3½, $1.50; No. 4, $2; No. 4½, $2.50
Masons' Colored Cotton.... dis 45
Wire Clothes, No. 18, $3.60; No 19, $3.00; No. 20, $2.50.
Ventilator Cord, Samson Braided, White or Drab Cotton.... $7.50 ₩ doz. dis 20 %

Locks, Padlocks, Cabinet Locks, &c.

Door Locks, Latches, &c.—

List, Dec. 30, '86, chgd Feb. 2, '87.... dis 50&10 @ 60&5 %
Note.—Lower net prices often made.
Mallory, Wheeler Co., list, July, 1888.. dis 50&10&2 %
Sargent & Co. (list Aug. 1, 1888).... dis 55&2&10 %
Reading Hardware Co. (list Feb. 2, '88).. dis 55@60&10 %
Livingston & Co.... dis 70 %
Perkins' Burglar Proof.... dis 60&25 %
Plate.... dis 33⅓&2 %
F. Many's "Extension Cylinder".... $10.50 ₩ doz
Barnes Mfg. Co.... dis 40 %
Yale Corrugated Key.... dis 33⅓ %
Diets Flat Key.... dis 30 %
L. & C. Round Key Latches.... dis 30&10 %
L. & C. Flat Key Latches.... dis 33⅓&10 %
Romer's Night Latches.... dis 15 %
Yale new list.... dis 33⅓ %
"Shepardson" or "U. S.".... dis 35 %
"Feltes" or "American".... dis 40&10 %
Reed's N. Y. Hasp Lock.... dis 25 %

Cabinet—

Eagle, Gaylord Parker and Corbin,.... } List March, '84, revised Jan. 1, '85. dis 33⅓&2 %
Deitz, Nos. 36 to 39.... dis 40 %
Deitz, Nos. 51 to 63.... dis 40 &10 %
Deitz, Nos. 86 to 96.... dis 30 %
Stoddard Lock Co.... dis 30 @ 33⅓ %
"Champion" Night Latches.... dis 40 %
Barnes Mfg. Co.... dis 40 %
Eagle and Corbin Trunk.... dis 25&2 %
Champion" Cabinet and Combination.... dis 33⅓ %
Yale.... dis 33⅓ %
Romer's.... dis 35 %

Padlocks—

List, Dec. 23, 84.... dis 75 @ 75&10 %
Yale Lock Mfg. Co.'s.... dis 33⅓ %
Eagle.... dis 25&2 %
Eureka, Eagle Lock Co.... dis 40&2 %
Romer's, Nos. 0 to 91.... dis 30 %
Romer's Scandinavian, &c, Nos. 100 to 505.... dis 15 %
A. E. Dietz.... dis 40 %
"Champion" Padlocks.... dis 40 %
Hotchkiss.... dis 30 %
"Star".... dis 45 %
"Horse Shoe." ₩ doz., $9.... dis 40 %
Barnes Mfg. Co.... dis 40 %
Nock's.... dis 30 %
Brown's Patent.... dis 25 %
Scandinavian.... dis 90 @ 90&10 %
Pralm's Pat. Scandinavian new list (low).... dis 60 %

Lumber Tools.

Ring Peavies, "Blue Line" Finish.... ₩ doz $30.00
Ring Peaves, Common Finish.... ₩ doz $18.00
Steel Socket Peavies.... ₩ doz $21.00
Mall. Iron Socket Peavies.... ₩ doz $12.00
Cant Hooks, "Blue Line" Finish.... ₩ doz $16.00
Cant Hooks, Common Finish.... ₩ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.... ₩ doz $16.00
Cant Hooks, Mall. Socket Clasp Common Finish.... ₩ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Fin. ₩ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.. ₩ doz $12.00
Hand Spikes.... ₩ doz 6 ft., $15.00; 8 ft., $20
Pike Poles, Pike & Hook, 12 ft. 14 ft. 16 ft 18 ft. 20 ft. ₩ doz.... $11.50 12.50 14.50 17.50 21.50
Pike Poles, Pike only, ₩ doz.... 10.00 11.00 13.00 16.00 20.00
Pike Poles, not Ironed, ₩ doz.... 6.00 7.00 9.00 12.00 16.0
Setting Poles, ₩ doz.... 14.00 15.00 17.00
Swamp Hooks.... ₩ doz $18.00
Landing Blocks.... ₩ doz $22.50
Skidding Tongs.... ₩ doz $51.00
Log Binders.... ₩ doz $26.00
Bended Boot Calks, 1 to 5 M, dis 25 %; 5 to 10 M, dis 30 %
Square Steel Boot Calks.... dis 40 %
Chain Rafting Dogs.... ₩ 100 $12.50
Ring Rafting Dogs.... ₩ 100, med., $10.00; large, $12.00
Timber Grappies.... ₩ doz $30.00

Lustre.

Four-ounce Bottles.... ₩ doz. $1.75 ₩ gro. $17.00

Mallets.

Hickory.... dis 20&10@20&10&10 %
Lignumvitæ.... dis 20&10@20&10&10 %
B. & L. Block Co, Hickory and L. V.... dis 30 @ 30&10

Match Safes.

Dangerfield's Self-Igniting.... ₩ doz $1.2

Mattocks.—Regular list.... dis 60&10 @ 60&10&5

Meat Cutters

Dixon's—Nos.... 1 2 3 4
₩ doz.... $14.00 17.00 19.00 30.00—dis 45 %
Woodruff's.... Nos. 100 150
₩ doz. $15.00 18.00—dis 45
Champion.... Nos. 200 300 400
₩ doz. $22.00 27.00 40.00—dis 45
Hales' Pattern Nos. 11 12 13
₩ doz.... $27.00 33.00 45.00 } dis 70 @ 70&5 %
American.... dis
Nos.... 1 2 3 4½
Each.... $5.00 7.00 10.00 25.00 50.00 60.00
Enterprise.... dis 30
Nos.... 10 12 22 32 42
Each.... $3. 2.50 4.00 6.00 15.00

Pennsylvania.....dis 40&10%

Nos.	1	2	3	00
₩ dos.	$24.00	$8.00	$6.00	$3.00

Miles' Challenge..Nos. 1 2
₩ dos..$22.00 30.00 40.00—dis 45@45&10 %
Home No. 1.....$26 ₩ dos, dis 55&10 %
Draw Cut..Nos.. 5 2 6 8
Each...$50.00 75.00 80.00 225.00—dis 20 @ 25 %
Beef Shavers (Enterprise Mfg. Co.)....dis 20&10 @ 30 %
Chadborn's Smoked Beef Cutter.....₩ dos, $66.00

Mincing Knives.
Am. Cld quality), ₩ gro, 1 blade, $7; 2 blades, $13; 3 blades, $18.....net
Lothrop's.....dis 20&10 %
Smith's, ₩ dos, Single, $2.00; Double, $3....dis 40@45 %
Knapp & Cowles.....dis 50&10@50 %
Buffalo Adjustable.....₩ dos $3.00, dis 25 %

Molasses Gates.—Stebbins' Pat..dis 70@70 & 7½ %
Stebbins' Genuine.....dis 60&10&10 %
Stebbins' Tinned Ends.....dis 40&10 %
Chase's Hard Metal.....dis 50&10 %
Bush's.....dis 20 %
Lincoln's Pattern.....dis 70 @ 70&10 %
Weed's.....dis 20&10 %

Boss Nos.	1	2	3	4
	$7.00	8.00	9.00	10.00

₩ dos, dis 60&10&10 %

Money Drawers.—₩ dos..$18 @ $20.

Muzzles.—Safety, ₩ dos. $3.....dis 25 %

Nails.....See Trade Report
Wire Nails & Brads, list July 16, '87,..dis 70&10 %
Wire Nails, Standard Penny.....₩ keg, $2.60 @ $2.70

Nail Puller.—Curtiss Hammer....₩ dos $9.00 net
Giant, No. 1.....₩ dos $30.00, dis 10 %
Pelican.....₩ dos $9.00, dis 25 %
Boss.....₩ dos $30, dis 30 %

Nail Sets.—Square.....₩ gro., $4.00 @ $4.25
Round.....₩ gro., $3.25
Cannon's Diamond Point.....₩ gro. $12 dis 20 %

Nut Crackers.
Table (Humason & Beckley Mfg. Co.).....dis 40 %
Blake's Pattern.....₩ dos $2.00, dis 10 %
Turner & Seymour Mfg. Co.....dis 50 %

Nuts.
Nuts, all kinds, 5½¢ off list Jan. 1, 1888.
In lots less than 100 ℔, ₩ ℔, add ½¢, 1 ℔ boxes add 1¢ to list.

Oakum.
Government.....₩ ℔ 8¢
U. S. Navy.....₩ ℔ 7¢
Navy.....₩ ℔ 6¢ @ 6½¢

Oilers.—Zinc and Tin.....dis 65 @ 65&10 %
Brass and Copper.....dis 50&10@50&10&5 %
Malleable, Hammers' Improved, No 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₩ doz.....dis 10 @ 10&10 %
Malleable, Hammers, Old Pattern, same list....dis 40 %
Prior's Patent or "Paragon" Zinc.....dis 60&10&10 %
Prior's Patent or "Paragon" Brass.....dis 50 %
Olmstead's Tin and Zinc.....dis 60 %
Olmstead's Brass and Copper.....dis 50 %
Broughton's Zinc.....dis 60 %
Broughton's Brass.....dis 50 %

Packing, Steam.

Rubber—
Standard.....dis 60&10 @ 60&10&10 %
Extra.....dis 50&10 @ 60 %
N. Y. B. & P. Co., Standard.....dis 50&10&5 %
N. Y. B. & P. Co., Empire.....dis 70 %
N. Y. B. & P. Co., Salamander.....₩ ℔ 65¢, dis 30 %
Jenkins' Standard.....₩ ℔ 80¢, dis 35 %

Miscellaneous—
American Packing.....10¢ @ 11¢ ₩ ℔
Russia Packing.....14¢ ₩ ℔
Italian Packing.....15 @ 14¢ ₩ ℔
Cotton Packing.....15 @ 17¢ ₩ ℔
Jute.....7 @ 8¢ ₩ ℔

Padlocks.—See Locks.

Pails.

Galvanized Iron—

Quarts.	10	12	14
Hill's Light Weight, ₩ doz.	$2.75	3.00	3.25
Hill's Heavy Weight, ₩ doz.	3.00	3.25	3.75
Whiting's	2.75	3.00	3.25
Sidney Shepard & Co	2.67		3.23
Iron Clad	2.75	3.00	3.25
Fire Buckets	2.75	3.25	3.50

Buckets, see Well Buckets

Indurated Fibre Ware—
Star Pails, 12 qt.....₩ doz $4.50
Fire Stable and Milk, 14 qt.....₩ doz $5.50

Pencils. Faber's Carpenters'.....high list, dis 50 %
Faber's Round Gilt.....₩ gro $5.25 net
Dixon's Lead.....₩ gro $4.50 net
Dixon's Lumber.....₩ gro $3.75 net
Dixon's Carpenters'.....dis 40&10 %

Picks.
Railroad, 5 to 6, $12.00; 6 to 7, $13.dis 60&10@60&10&5 %
Adze Eye, 5 to 6, $12.00; 6 to 7, $13.dis 60&10@60&10&5 %

Picture Nails.
Brass Head, Sargent's list.....dis 50&10&10 %
Brass Head, Combination list.....dis 50&10 %
Porcelain Head, Sargent's list.....dis 50&10&10 %
Porcelain Head, Combination list.....dis 40&10 %
Niles' Patent.....dis 40 %

Pinking Irons......₩ doz 55¢ net

Pipe, Wrought Iron.—List March 23, 1887.
1¼ and under. Plain.....dis 55 %
1¼ and under. Galvanized.....dis 47½ %
1½ and over, Plain.....dis 65 %
1½ and over, Galvanized.....dis 55 %
Boiler Tubes, iron.....dis 65 %

Planes and Plane Irons.

Wood Planes—
Moldings.....dis 50&5 @ 50&10 %
Bench, First Quality.....dis 50&10 @ 60 %
Bench, Second Quality.....dis 60&10 @ 60&10&5 %
Bailey's (Stanley R. & L. Co.).....dis 30&10 %

Iron Planes—
Bailey's (Stanley R. & L. Co.)...dis 30&10@30&10&5 %
Miscellaneous Planes (Stanley R. & L. Co.)dis 20&10 %
Victor Planes (Stanley R. & L. Co.).....dis 20& 10 %
Steer's Iron Planes.....dis 35 @ 35&5 %
Meriden Mal. Iron Co.'s.....dis 30&10@30&10&10 %
Davis's Iron Planes.....dis 30&10&30&10&10 %
Birmingham Plane Co.....dis 50@50&5 %
Gage Tool Co.'s Self-Setting.....dis 20 %
Chaplin's Iron Planes.....dis 40 @ 40&5 %
Sargent's.....dis 30&10 @ 30&10&10 %

Plane Irons—
Plane Irons.....dis 20&10 %
Plane Irons, Butcher's.....$5.00 @ $5.25 to £
Plane Irons, Buck Bros.....dis 30 %
Plane Irons, Auburn Tool Co., "Thistle".....dis 40 %
Plane Irons, Middlesex Mfg. Co., "Baldwin Iron," Single and Cut.....dis 20 @ 25 %
Double.....dis 33⅓ @ 40 %
L. & I. J. White.....dis 25 %

Pliers and Nippers.
Button's Patent.....dis 30&10 @ 40 %
Hall's Pat. Compound Lever Cutting Nippers, No. 2, 5 in., $13.50: No.4, 7 in., $21.00 ₩ dos dis 20&10@33⅓ %
Humason & Beckley Mfg. Co.....dis 50@50&10 %
Gas Pliers.....dis 60 %
Gas Pliers, Custer's Nickel Plated.....dis 60&5 %
Eureka Pliers and Nippers.....dis 40 %
Russell's Parallel.....dis 25 %
P. S. & W. Cast Steel.....dis 50 %
P. S. & W. Tinners' Cutting Nippers....add 5 % dis 10 %
Carew's Pat. Wire Cutters.....dis 30 %
Morrill's Parallel, per doz., $12.....dis 30&5 %
Cronk's 8 in., $15; 10 in., $21.....dis 40 @ 40&5 %

Plumbs and Levels.
Regular List.....dis 70&10@70&10&10 %
Disston's.....dis 45&10 %
Pocket Levels.....dis 70&10@70&10&10 %
Davis Iron Levels.....dis 30 %
Davis' Inclinometers.....dis 10&10 %

Poppers, Corn.
Round or Square, 1 qt.....₩ gro $12 @ $15
Round or Square, 2 qt.....₩ gro $25 @ $26

Post Hole and Tree Augers and Diggers.
Samson Post Hole Digger.....₩ doz $36.00, dis 25&10 %
Fletcher Post Hole Augers.....₩ doz $36.00, dis 20 %
Eureka Diggers.....₩ doz $10 @ $17
Leed's.....₩ doz $8.00 @ $9.00
Vaughan's Post Hole, Auger, per doz....$13 00 @ $14.00
Kohler's Little Giant.....₩ doz $18.00
Kohler's Hercules.....₩ doz $15.00
Kohler's New Champion.....₩ doz $9.00
Schneidler.....₩ doz $18
Ryan's Post Hole Diggers.....₩ doz $24
Cronk's Post Bars.....₩ doz $60, dis 50&5 @ 50&10 %
Gibb's Post Hole Digger, ₩ doz $30....dis 40 @ 40&10 %

Potato Parers.
White Mountain.....₩ doz $5.00 @ 5.50
Antrim Combination.....₩ doz $8.00
Hoosier.....₩ doz $13.50

Pruning Hooks and Shears.
Disston's Combined Pruning Hook and Saw, ₩ doz $18.00.....dis 20&10 %
Disston's Pruning Hook.....₩ doz $12.00, dis 20&10 %
E. S. Lee & Co.'s Pruning Tools.....dis 40 %
Pruning Shears, Henry's Pat...₩ doz $3.75 @ $4.00 net
Henry's Pruning Shears.....₩ doz $4.25 @ $4.50 net
Wheeler, M. & Co.'s Combination...₩ doz $12, dis 20 %
Dunlap's Saw and Chise.....₩ doz $8.50, dis 30 %
J. Mallinson & Co.....No. 1, $5.25; No. 2, $7.25

Pulleys.—Hot House, Awning, &c.....dis 60&10 %
Japanned Screw.....dis 60&10 %
Brass Screw.....dis 60&10 %
Japanned Side.....dis 60@&10 %
Japanned Clothes Line.....dis 60&10 %
Empire Sash Pulley.....dis 55 @ 60 %
Moore's Sash, Anti Friction.....dis 50 %

Hay Fork, Solid Eye, $4.00; Swivel, $4.50 { dis 50&10, @ 50&10&5 %

Hay Fork, "Anti-Friction," 5 in. Solid, $5.70....dis 50 %
Hay Fork, "F" Common and Pat. Bushed.....dis 20 %
Hay Fork, Tarbox Pat. Iron.....dis 20 %
Hay Fork, Reed's Self-Lubricating.....dis 60 %
Shade Rack.....dis 45 %
Tackle Blocks.....See list

Pumps.—Cistern, Best Makers.....dis 50 @ 10&50 %
Pitcher Spout, Best Makers...dis 60&10 @ 60&10&10 %
Pitcher Spout, Cheaper Goods..dis 70&5 @ 70&10&5 %

Punches.
Saddlers' or Drive, good quality.....₩ dos 60¢ @ 65¢
Bemis & Call Co.'s Cast Steel Drive.....dis 50&5 %
Bemis & Call Co.'s Springfield Socket.....dis 50&5 %
Spring, good quality.....₩ dos $2.50 @ $2.60
Spring, Leach's Patent.....dis 15 %
Bemis & Call Co.'s Spring and Check.....dis 40 %
Solid Tinners'.....₩ dos $1.44, dis 55 %
Tinners' Hollow Punches.....dis 20&2 %
Rice Hand Punches.....dis 15 %

Rail.
Sliding Door, Wrt. Brass, ₩ ℔ 35¢.....dis 15 %
Sliding Door, Bronzed Wrt. Iron.....₩ foot 7¢
Sliding Door Iron, Painted....₩ foot 4¢, dis 20&10&5 %
Barn Door, Light...Inch. ¾ ⅝ ½
Per 100 feet.....$3.50 3.00 4.40—dis 10 %
B D for N E. Hangers—

	Small.	Med.	Large
Per 100 feet	$2.15	2.70	3.25 net

Terry's Wrought Iron, ₩ foot.....4¾¢ @ 5¢
Victor Track Rail, 7¢ ₩ foot.....dis 50&2 %
Carrier Steel Rail, per foot.....4½¢

Rakes.
Cast Steel.....dis 65&5 @ 70 %
Malleable.....dis 70 @ 70&5 %
Gibbs Lawn Rake.....$13, dis 40 %
Canton Lawn Rake.....$9, dis 40 %
Ft. Madison Prize Bow Brace and Peerless...dis 65&5 %
Fort Madison Steel Tooth Lawn Rake, $6.....dis 25 %

Razors.—J. R. Torrey Razor Co.....dis 20%
Wostenholme and Butcher.....$10 to $, dis 10 %

Razor Strops.
Genuine Emerson.....dis 60 @ 60&5 %
Imitation Emerson.....₩ dos $2.00, dis 20&10&5 %
Torrey's.....dis 20 %
Badger's Belt and Combination.....₩ dos $2
Lamont Combination.....₩ dos $4

Rivets and Burrs.
Copper.....dis 50 @ 50&10 %
Iron, list November 17, 1887.....dis 50 @ 50&7½ %

Rivet Sets......dis 50&2 @ 50&10 %

Rods.—Stair, Brass.....dis 2&2 %
Stair, Black Walnut.....₩ doz 40¢

Rollers.
Barn Door, Sargent's list.....dis 60&10&10 %
Acme (Anti-Friction).....dis 55 %
Union Barn Door Roller.....dis 70 %

Rope.—Manufacturers' prices for large lots.
Manila.....⅝ inch and larger ₩ ℔ 11½¢ net
Manila.....½ inch ₩ ℔ 12¢ net
Manila.....⅜ and 5-16 inch ₩ ℔ 12½¢ net
Manila Tarred Rope.....₩ ℔ 11¢ net
Manila, Hay Rope.....₩ ℔ 11½¢ net
Sisal.....⅝ inch and larger ₩ ℔ 9½¢ net
Sisal.....½ inch ₩ ℔ 10 ¢ net
Sisal.....⅜ and 5-16 inch ₩ ℔ 10½¢ net
Sisal, Hay Rope.....₩ ℔ 9½¢ net
Sisal, Tarred Rope.....₩ ℔ 9 ¢ net
Sisal, Medium Lath Yarn.....₩ ℔ 8½¢ net
Cotton Rope.....₩ ℔ 15 @ 18¢ net
Jute Rope.....₩ ℔ 7¢

For cash in 10 days.

Rules.
Boxwood.....dis 80&10 @ 80&10&10 %
Ivory.....dis 50 @ 50&10 %
Starrett's Rules and Straight Edges, Steel..dis 25&10 %

Sad Irons.
From 4 to 10, at factory.....₩ 100 ℔ $2.40 @ $2.55
Self-Heating.....₩ doz. $9.00 net
Self-Heating, Tailors'.....₩ doz. $18.00 net
Gleason's Shield and Toilet.....dis 25 %
Mrs. Pott's Irons.....dis 40@40&25 %
Enterprise Star irons, new list, July 20, 1882....dis 40 %
Combined Fluter and Sad Iron...₩ dos. $15.00, dis 15 %
Fox Reversible, Self-Fluter.....₩ dos., $24.00 net
Chinese Laundry (N. E. Butt Co.).....8½¢, dis 15 %
New England.....8¢, dis 15 %
Mahony's Troy Pol. Irons.....dis 25%
Sensible.....dis 20 @ 20&5 %

Sand and Emery Paper and Cloth.
List April 19, 1886.....dis 20@20&5 %
Sibley's Emery and Crocus Cloth.....dis 30 %

Sash Cord.
Common.....₩ ℔, 10¢ @ 11¢
Patent, good quality.....₩ ℔, 12¢ @ 13½¢
White Cotton Braided, fair quality.....₩ ℔ 28¢ @ 29¢
Common Russia Sash.....₩ ℔ 13½¢
Patent " " .....₩ ℔ 15¢
Cable Laid Italian " .....₩ ℔ 22¢ @ 23¢
India Cable Laid " .....₩ ℔ 13¢
Silver Lake, A Quality, White.....50¢, dis 10&10&5 %
Silver Lake, A Quality, Drab.....55¢, dis 10&10&5 %
Silver Lake, B Quality, White.....50¢, dis 20&10&5 %
Silver Lake, B Quality Drab.....55¢, dis 20&10&5 %
Silver Lake, C Quality, White (only).....27¢ @ 28¢
Sylvan Spring, Extra Braided, White.....34¢
Sylvan Spring, Extra Braided, Drab.....30¢
Semper Idem, Braided, White.....30¢
Egyptian, India Hemp, Braided.....25¢
Samson, Braided, White Cotton....60¢ dis 30 @ 30&5 %
Samson, Braided, Drab Cotton.....55¢ dis 30 @ 30&5 %
Samson, Braided Italian Hemp....55¢ dis 30 @ 30&5 %
Samson, Braided Linen.....80¢ dis 30 @ 30&5

Sash Locks.
Clark's No. 1, $10.00; No. 2, $8.00 ₩ gross.....dis 33⅓ %
Ferguson's.....dis 33⅓ %
Morris and Triumph, list Aug. 16, 1886.....dis 60&2 %
Victor.....60&10&2 %
Walker's.....dis 10 %
Attwell Mfg. Co.....dis 25 @ 33⅓ %
Reading.....dis 60⅔&10 @ 60⅔&10&10 %
Hammond's Window Springs.....dis 40 %
Common Sense, Jap d. Cop'd and Br'sed..₩ gross $4.20
Common Sense, Nickel Plated.....₩ gross $10.00
Universal.....dis 30 %
Kempshall's Gravity.....dis 60 %
Kempshall's Model.....dis 60@60&10 %
Corbin's Daisy, list February 15, 1886.....dis 70 %
Payson's Perfect.....dis 60 @ 60&10 %
Bugunin's New and Improved Adjustable Sash Balances, list Jan. 5, 1887.....dis 25&2 &2 %
Hugunin's New Sash Locks, list Jan. 5, '87.dis 25&5&2 %
Stoddard "Practical".....dis 10 %
Ives Patent.....dis 60 %
Liesche's Nos. 100 & 110, ₩ gro. $3; 105, $10, dis 20&10 %
Davis, Bronze, Barnes Mfg. Co.....dis 50 %
Champion Safety, List March 1, 1888....dis 55&55&5 %
Security.....dis 70,%

Sash Weights.
Solid Eyes.....₩ ton, $22

Sausage Stuffers or Fillers.
Miles' "Challenge".....₩ dos. $20, dis 50@50&5 %
Perry.....₩ dos. No. 1, $15; No. 0, $21, dis 50@50&5 %
Draw Cut No. 4.....each, $90.00, dis 20 %
Enterprise Mfg. Co.....dis 20&10 @ 30 %
Oliver's.....dis 40&10 %

Saws.
Disston's Circular....dis 45@45&5 %
Diston's Cross Cuts..dis 45@45&5 %
Disston's Hand.....dis 25@25&5 %
} Extras some times given by jobbers.
Atkins' Circular.....dis 50 %
Atkins' Silver Steel Diamond X Cuts.....₩ foot 70¢
Atkins' Special Steel Dexter X Cuts.....₩ foot 50¢
Atkins' Special Steel Diamond X Cuts.....₩ foot 30¢
Atkins' Champion and Electric Tooth X Cuts.....₩ foot 27 @ 28¢
Atkins' Hollow Back X Cuts.....₩ foot 18¢
Atkins' Shingle, Mulay, Drag, &c.....dis 45 %
W. M. & C. Hand.....dis 30&5 @ 30&10 %
W. M. & C. Champion X Cuts, Regular ₩ foot .24@28¢
W. M. & C. X Cuts, Thin Back.....₩ foot 27¢@29¢
Peace Circular and Mill.....dis 45&10 %
Peace Hand Panel and Rip....dis 20&10 @ 20&10&10 %
Peace Cross Cuts, Standard.....₩ foot 25¢
Peace Cross Cuts, Thin Back.....₩ foot 27¢@28¢
Richardson's Circular and Mill.....dis 45 @ 45&10 %
Richardson's X-Cuts, No. 1, 30¢; No. 2, 27¢; No. 3, 24¢

Hack Saws—
Griffin's Hack Saws, complete.....dis 40&10 @ 50 %
Griffin's Hack Saw, Blades only....dis 40&10 @ 50 %
Star Hack Saws and Blades.....dis 25 %
Diamond Hack Saws and Blades.....dis 25 %
Eureka and Crescent.....dis 25 %

Saw Frames.
White Vermont.....₩ gro $9 @ $10
Red, Polished, and Varnished....₩ dos $1.50, dis 35 %

Saw Sets.
Stillman's Genuine...₩ dos $5.00 and $7.75, dis 40&5 %
Stillman's Imita..₩ dos $3.25and$5.25,dis40&5@40&10%
Common Lever.....₩ dos $2.00, dis 40&5 %
Morrill's No. 1, $15.00; Nos. 2 & 4, $24....dis 40&10@50%
Leach's.....No. 0, $8.00; No. 1, $15.00, dis 15 @ 20 %
Nash's.....dis 20&10 @ 20&10&10 %
Hammer, Hotchkiss.....$5.50, dis 10 %
Hammer, Bemis & Call Co.'s new Patent....dis 30&5 %
Bemis & Call Co.'s Lever and Spring Hammer..dis 30&5 %
Bemis & Call Co.'s Plate.....dis 10 %
Bemis & Call Co.'s Cross Cut.....dis 12½ %
Aiken's Genuine.....$13.00, dis 50&10 %
Aiken's Imitation.....$7.00, dis 55&5 %
Hart's Patent Lever.....dis 20 %
Disston's, Star, ₩ No. 15, $5.50,dis 20&10@20&10&10 %
Atkins' Lever.....per doz No. 1, $5.00; No. 2, $9.60
Atkins' Criterion.....per doz $7.50
Croissant(Keller),No.1,$15.00; No. 2,$24.00...dis 40&10 %

Saw Tools.
Atkins Perfection....$15.00; Excelsior $8.00 ₩ doz

Scales.
Hatch, Counter, No. 171, good quality.....₩ doz $21
Hatch, Tea, No. 161.....₩ doz $6.75 @ $7.00
Union Platform, Plain.....$2.10 @ 2.20
Union Platform, Striped.....$2.20 @ 2.30
Chatillon's Grocers' Trip Scales.....dis 50 %
Chatillon's Eureka.....dis 25 %
Chatillon's Favorite.....dis 40 %
Family, Turnbull's.....dis 30@30&10

Scale Beams.
Scale Beams, List of Jan. 12, 82..dis 50&10@50&10&5 %
Chatillon's No. 1.....dis 40 %
Chatillon's No. 2.....dis 50 %

Scrapers.
Adjustable Box Scraper (S. R. & L. Co.)$6.50, dis 30&10 %
Box, 1 Handle.....₩ doz $4.00, dis 10 %
Box, 2 Handle.....₩ doz $6.00, dis 10 %
Defiance Box and Ship.....dis 20&10 %
Foot.....dis 50&10@60 %
Ship, Common.....₩ doz $3.50 net
Ship, Providence Tool Co.....dis 10 %

Screen Window and Door Frames.
Porter's Pat. Window and Door Frame...dis 33⅓&10 %
Screen Corner Irons, Warner's....dis 33⅓ @ 33⅓&10 %
Stearns' Frames and Corners.....dis 25 @ 25&10 %

Screw Drivers.
Douglas Mfg Co.....dis 20&10&10 %
Disston's.....dis 45&10 %
Disston's Patent Excelsior.....dis 45&10 %
Buck Bros.....dis 30 %
Stanley R. & L. Co.'s Varnished Handles.....dis 65&10 %
Stanley R. & L. Co.'s Black Handles.....dis 60&10 %
Sargent & Co.'s No. 1 Forged Blade....dis 60&10&10 %
Sargent & Co.'s Nos. 20, 40 and 60.....dis 66⅔&10&10 %
Knapp & Cowles' No. 1.....dis 60&20 @ 70 %
Knapp & Cowles' No. 1 Extra.....dis 60 @ 60&10 %
Knapp & Cowles' No. 60 & 4.....dis 50&5 @ 50&10&5 %
Stearns'.....dis 25&10&5 %
Gay & Parsons.....dis 35 %
Champion.....dis 25&10 %
Clark's Patent.....dis 30 @ 33⅓ %
Crawford's Adjustable.....dis 30 %
Ellrich's Socket and Ratchet.....dis 25 @ 25&10 %
Allard's Spiral, new list.....dis 25 %
Kolb's Common Sense.....₩ dos $6, dis 25&10

Syracuse Screw-Driver Bits.....dis 30 & 30&5 %
Screw Driver Bits.....₩ doz, 50¢ @ 75¢
Screw Driver Bits, Parr's.....₩ gro 6.25
Fray's Hol. Hdle. Sets, No. 3, $12.....dis. 25 @ 25 & 10 %
P. D. & Co.'s, all Steel.....dis 50 %

Screws
Wood Screws—List, Brass, Jan 27; Iron, July 1, 1887
Flat Head Iron.....dis 70 %
Round Head Iron.....dis 65 %
Flat Head Brass.....dis 65 %
Round Head Brass.....dis 60 %
Flat Head Bronze.....dis 65 %
Round Head Bronze.....dis 60 %
} Ex. 10 % often given by jobbers.

Machine—
Flat Head, Iron.....dis 55 %
Round Head, Iron.....dis 50 %
Bench and Hand—
Bench, Iron.....dis 55&10 @ 55&10&10 %
Bench, Wood, Beech.....₩ dos $2.25
Bench, Wood, Hickory.....dis 20&10 %
Hand, Wood.....dis 25&10 @ 25&10&5 %
Lag, Blunt Point.....dis 75 @ 75&10 %
Coach and Lag, Gimlet Point.....dis 75 %
Bed.....dis 25&5 %
Hand Rail, Sargent's.....dis 66⅔&10 %
Hand Rail, Hunnason, Beckley & Co.'s..dis 70&10&75 %
Hand Rail, Am. Screw Co.....dis 75 %
Jack Screws, Millers Falls list.....dis 50 @ 50&5 %
Jack Screws, P. S. & W.....dis 35 %
Jack Screws, Sargent.....dis 60&10 @ 60&10&5 %
Jack Screws, Stearns.....dis 40 @ 40&10 %

Scroll Saws.
Lester, complete, $10.00.....dis 25 %
Rogers, complete, $4.00.....dis 25 %
Barnes' Builders' and Cabinet Makers', $15.....dis 25 %

Scythe Snaths.....dis 50&2 %

Shears.
American (Cast) Iron.....dis 75&10 @ 75&10&5 %
Pruning.....See Pruning Hooks and Shears
Barnard's Lamp Trimmers.....₩ doz $3.75
Tinners'.....dis 20&2 %
Seymour's, List, Dec., 1881 dis 60&10&10@60&10&10&5 %
Heinsch's, List, Dec., 1881, dis 60&10&10@60&10&10&5 %
Heinsch's Tailor's Shears.....dis 33⅓ %
First quality C. S. Trimmers.....dis 80@80&10 %
Second quality C. S. Trimmers, dis 80&10@80&10&10 %
Acme Cast Shears.....dis 10&10 %
Diamond Cast Shears.....dis 10 %
Clipper.....dis 10&10 %
Victor Cast Shears.....dis 75&10@75&10&5 %
Howe Bros. & Hulbert, Solid Forged Steel.....dis 40 %
Cleveland Machine Co., Solid Steel Forged.....dis 70 %
Clauss Shear Co., Japanned.....dis 70 %
Clauss Shear Co., Nickeled, same list.....dis 60 %

Sheaves.
Sliding Door—
M. W. & Co., list July, 1888.....dis 50&10 @ 60&5 %
R. & K., list Dec. 18, 1885.....dis 55&2 %
Corbin's list.....dis 60&10&2 %
Patent Roller.....dis 60&10&2 %
Patent Roller, Hatfield's.....dis 75 %
Russell's Anti-Friction, list Dec. 18, 1885..dis 60&2 %
Moore's Anti-Friction.....dis 60 %
Sliding Sawtier—
R. & K. list Dec. 18, 1885.....dis 60&10&2 %
Sargent's list.....dis 60&10 %
Reading list.....dis 60&10&10 %

Ship Tools.
L. & I. J. White.....dis 20&5 %
Albertson Mfg. Co.....dis 25 %

Shoes, Horse, Mule, &c.
Horse—
Burden's, Perkins', Phœnix, at factory.....$4.00
Mule—Add $1 ₩ keg to above prices
Ox, Wrought—
Ton lots.....₩ ₵ 9¢
1000 ℔ lots.....₩ ₵ 9½¢
500 ℔ lots.....₩ ₵ 10¢

Shot.—*(Eastern prices, 2¢ off. cash, 5 days.)*
Drop, ₩ bag, 25 ℔.....$1.45
Drop, ₩ bag, 5 ℔.....34
Buck and Chilled, ₩ 25-℔ bag.....$1.70
Buck and Chilled, ₩ 5 ℔ bag.....39

Shovels and Spades.
Ames' Shovels, Spades, &c., list Nov. 1, 1885... dis 20 %
NOTE.—Jobbers frequently give 5 @ 7½ % extra on above.
Griffith's Black Iron.....dis 50&10 %
Griffith's C. S.....dis 60 @ 60&10 %
Grimth's Solid Cast Steel R. R. Goods.....dis 20 %
Old Colony (Sanford Fork & Tool Co).....dis 20 %
St. Louis Shovel Co.....dis 20 @ 20&7½ %
Sussex, Blunt & Co.....dis 15 @ 25 %
Hubbard & Co.....dis 20@20&7½ %
Lehigh Mfg. Co.....dis 50&10 %
Payne Pettebone & Son, list January, 1886.....dis 30 %
Remington's (Lowman's Patent).....dis 30&10 @ 40 %
Rowland's, Black Iron.....dis 50&10 %
Rowland's Steel.....dis 60&5 @ 60&10 %

Shovels and Tongs.
Iron Head.....dis 60&10@60&10&5 %
Brass Head.....dis 60&10&10 %

Skeins, Thimble.
Western list.....dis 75&5 @ 7o&10 %
Columbus Wrt. Steel, list Nov. 1, 1887.....dis 20 %
Coldbrookdale Iron Co.....dis 50&10 %
Utica P. S. T. Skeins.....dis 60 %
Utica Turned and Fitted.....dis 35 %

Sieves.
Buffalo Metallic, S. S. & Co., new list..dis 50&25&10 %
Barler Flour Sifters.....₩ doz $2.00
Smith's Adjustable Sifters.....₩ doz $2.25
Smith's Adjustable Milk Strainer.....₩ doz $2.00
Smith's Adjustable F. & C. Strainer.....₩ doz $1.75

Sieves, Wooden Rim—	Iron.	Plated.
Mesh 18, Nested, ₩ doz...	70¢	90¢
Mesh 20, Nested, ₩ doz...	85¢	$1.00
Mesh 24, Nested, ₩ doz...	$1.00	1.10

Slates.—School, by case.....dis 50&10 %

Snaps, Harness, &c.
Anchor (T. & S. Mfg Co.).....dis 60 %
Fitch's, Bristol.....dis 50&10 %
Hotchkiss.....dis 10 %
Andrews.....dis 50 %
Sargent's Patent Guarded.....dis 70&10&10 %
German, new list.....dis 40&10 %
Covert.....dis 50&2 %
Covert, New Patent.....dis 50&5&2 %
Covert New R. E.....dis 60&2 %
Covered Spring.....dis 60&10&10 %

Soldering Irons.
Covert's Adjustable list Jan. 1, 1886.....dis 35&2 %

Spoke Shaves—Iron.....dis 45 %
Wood.....dis 30 %
Bailey's (Stanley R. & L. Co.).....dis 40&10 %
Stearns'.....dis 20&10 @ 30 %

Spoke Trimmers.
Bonney's.....₩ dos $10.00, dis 50 %
Stearns'.....dis 20&10 %
Ives'.....No. 1, $15.00; No. 2, $12.00 ₩ dos, dis 55&10 %
Douglass'.....₩ dos $9.00, dis 20 %

Spoons and Forks.
Tinned Iron—
Basting, Central Stamping Co.'s list.....dis 70&10 %
Solid Table and Tea, Central Stamping Company's list.....dis 70&10 %
Buffalo, S. S. & Co.....dis 33⅓&2 %
Silver-Plated—4 mos or 5 % cash 30 days.
Meriden Brit. Co., Rogers.....dis 50 %
C. Rogers & Bros.....dis 50 %
Rogers & Bro.....50 %
Reed & Barton.....dis 50 %
Wm. Rogers Mfg. Co.....dis 50&10 @ 50&10&5 %
Simpson, Hall, Miller & Co.....dis 50&10 %
Holmes & Edwards Silver Co..dis 50&10 @ 50&10&5 %
H. & E. Silver Co. Mexican Silver.....dis 50&5 %
H. & E. Silver Co., Durham Silver.....dis 50&5 %
German Silver.....dis 50 @ 5)&5 %
German Silver, Hall & Elton.....dis 50&5 %, cash
Nickel Silver.....dis 50&5@50&10&5 % cash
Britannia.....dis 60 %
Boardman's Flat Ware.....dis 5)&1)&5 %
Boardman's Nickel Silver.....dis 5)&5 %
Boardman's Brit'nia Spoons, case lots.....dis 6)&5 %

Springs.
Elliptic, Concord, Platform and Half Scroll.....dis 60 @ 60&5 %
Cliff's Bolster Springs.....dis 25 %

Squares.
Steel and Iron.....dis 75 @ 80 %
Nickel Plated.....
Try Square and T Bevels.....dis 60&10&10 @ 70 %
Disston's Try Square and T Bevels.....dis 45&10 %
Winterbottom's Try and Miter.....dis 30&10 %
Starrett's Micrometer Caliper Squares.....dis 25 %

Staples.
Fence Staples, Galvanized } Same price as Barb Wire.
Fence Staples, Plain } See Trade Report.

Steelyards......dis 40&10&50 %

Stocks and Dies.
Blacksmith's, Waterford Goods.....dis 30&5 @ 30&10 %
Lightning Screw Plate.....dis 25 @ 30 %
Reece's New Screw Plates.....dis 33⅓ @ 33⅓&5 %

Stone.
Hindostan No. 1, 3¢; Axe, 5½¢: Slips No. 1, 5¢.
Sand Stone.....₩ ℔, 2¢
Washita Stone, Extra.....₩ ℔, 2 1 @ 22¢
Washita Stone, No. 1.....₩ ℔, 15 @ 16¢
Washita Stone, No. 2.....₩ ℔, 11 @ 12¢
Washita Stone, No. 1, Extra.....₩ ℔, 40 @ 42¢
Washita Slips, No. 1.....₩ ℔, 30 @ 32¢
Arkansas Stone, No. 1, 4 to 6 in.....₩ ℔, $1.35
Arkansas Stone, No. 1, 6 to 9 in.....₩ ℔, $1.75
Turkey Oil Stone.....4 to 8 in., ₩ ℔, 40¢
Turkey Slips.....₩ ℔, $1.00 @ $1.50
Lake Superior, Chase.....₩ ℔, 16¢
Lake Superior Slips, Chase.....₩ ℔, 31@32¢
Seneca Stone, Red Paper Brand, ₩ ℔.....18 @ 20¢
Seneca Stone, High Rounds, ₩ ℔.....30 @ 25¢
Seneca Stone, Small Wheels, ₩ gro.....$24.00

Stove Polish—Joseph Dixon's..₩ gro $6, dis 10 %
Gem.....₩ gro $4.50, dis 10 %
Gold Medal.....₩ gro $6.00, dis 25 %
"Mirror".....₩ gro $6.00, dis — %
Lustro.....₩ gro $4.75 net
Ruby.....₩ gro $3.75 net
Rising Sun, 5 gro. lots.....₩ gro $5.50
Dixon's Plumbago.....₩ ℔ 8¢ net
Bognton's Noon Day, ₩ gro.....$5.00
Parlor Pride Stove Enamel.....₩ gross, $13

Yates' Liquid,	2	3	5	10 gal. cans
₩ gal.	$0.90	.80	.70	.60

Yates Standard Paste Polish, 10-lb cans, per lb., 15 ¢
Jet Black.....₩ gro $3.50
Japanese.....₩ gro $3.50
Fireside.....₩ gro $2.50
Diamond O. K Enamel.....₩ gro $19.00
Bonnell's Liqu'd Stove Polish.....₩ gro $9.00
Bonnell's Pa-te Stove Polish.....₩ gro $6.00

Tacks, Brads, &c.
List Jan. 2, 1888.

American Iron Carpet Tacks	dis 72½&10&2 %
Steel Carpet Tacks	dis 72½&10&2 %
Swedes Iron Carpet Tacks	dis 72½&10&2 %
American Iron Cut Tacks	dis 70&10&2 %
Swedes Iron Tacks	dis 67½&10&2 %
Swedes Iron Upholsterers' Tacks	dis 67½&10&2 %
Tinned Swedes Iron Tacks	dis 67½&10&2 %
Tin'd Sw'des Iron Uphol'ers' Tacks	dis 67½&10&2 %
Gimp and Lace Tacks	dis 67½&10&2 %
Tinned Gimp and Lace Tacks	dis 67½&10&2 %
Swedes Iron Trimmers' Tacks	dis 67½&10&2 %
Swedes Iron Miners' Tacks	dis 67½&10&2 %
Swedes Iron Bill Posters' or Railroad Tacks	dis 67½&10&2 %
Swedes Steel Tacks, all kinds (Swedes Iron price list)	dis 72½&10&2 %
Copper Tacks	dis 33⅓&10&2 %
Copper Finishing Trunk and Clout Nails	dis 33⅓&10&2 %
Finishing Nails	dis 60&10&2 %
Trunk and Clout Nails	dis 60&10&2 %
Tinned Trunk and Clout Nails	dis 60&10&2 %
Basket Nails	dis 60&10&2 %
Common and Patent Brads	dis 60&10&2 %
Hungarian Nails	dis 60&10&2 %
Chair Nails	dis 60&10&2 %
Zinc Glaizers' Points	dis 40&10&2 %
Cigar Box Nails	dis 45&10&2 %
Picture-Frame Points	dis 45&10&2 %
Looking-Glass Tacks	dis 45&10&2 %
Leathered Carpet Tacks	dis 45&10&2 %
Brush Tacks	dis 45&10&2 %
Shoe Finders'.....List Jan. 2, 1888. dis 10 @ 10&5 %	

Lining and Saddle Nails, List Jan. 1, 1886:

Silvered	dis 30&10&10 %
Japanned	dis 20&10&10 %
Double-pointed Tacks	85 %
Wire Carpet Nails	dis 50&10 %

Wire Brads and Nails.....See Nails, Wire
Steel Wire Brads, R. & K. Mfg. Co.'s list.....dis 50&10 %

Tap Borers.—Common and Rose.....dis 20&10 %
Ives' Tap Borers.....dis 33⅓&5 %
Enterprise Mfg. Co.....dis 20&10 @ 30 %
Clark's.....dis 33⅓ @ 35 %

Tapes, Measuring.—American.....dis 25&10 %
Spring.....dis 40 %
Chesterman's.....Regular list dis 25 @ 30 %

Thermometers.—Tin Case.....dis 80 @ 80&10 %
Thimble Skeins.—See Skeins.
Ties, Bale.—Steel Wire, Stan'rd list..dis 50&10&25 %

Tinners' Shears, &c.
Shears and Snips, P. S. & W.....dis 20 @ 25 %
Punches—See Punches.
Snips, J. Mallinson & Co.....dis 33⅓ %

Tinware.
Stamped, Japanned & Pieced, list Jan. 20, 18.....dis 70&10 @ 70&10&5 %

Tire Benders, Upsetters, &c.
Stoddard's Lightning Tire Upsetters.....dis 15 %
Detroit Perfected Tire Bender.....dis 15 %

Tobacco Cutters.
Enterprise Mfg. Co. (Champion).....dis 20&10 @ 30 %
Wood Bottom.....₩ dos $5.00 @ $5.25
All Iron.....₩ dos $4.35
Nashua Lock Co.'s.....₩ dos $18.00, dis 50 @ 55 %
Wilson's.....dis 50 %
Sargent's.....₩ doz $24, dis 55&10 %
Acme.....₩ doz $20.00, dis 40 %

Transom Lifters.
Wollensak's Patent Iron Bronsed.....dis 50 %
Reiher's Bronzed Iron Rods list Jan. 1, 1887, dis 50&2 %
Reiher's Real Bronze or Nickel Plate, list Jan. 1, 1887.....dis 50&2 %
Excelsior.....dis 50&10&2 %
Shaw's.....dis 50&10 %
Payson's Universal.....dis 40 @ 40&10 %
Crown and Star.....dis 50 %

Traps.
Game—
Newhouse.....dis 35 @ 40&5 %
Oneida Pattern.....dis 70 @ 70&5 %
Game Blake's Patent.....dis 40&10&5 %
Mouse and Rat—
Mouse Wood, Choker.....₩ doz holes, 11@12
Mouse, Round Wire.....₩ dos $1.50, dis 10 %
Mouse Cage, Wire.....₩ dos $2.50, dis 10 %
Mouse Catch-'em-alive.....₩ dos $2.50, dis 15 %
Mouse, "Bonanza".....₩ gross $10 net
Mouse Delusion.....₩ gross $18.00, dis 10 %
Rat, "Decoy".....₩ gross $10.00, dis 10 %
Ideal.....₩ gross $1
Cyclone.....₩ gross $5.25
Hotchkiss Metallic Mouse, 5-hole traps.....₩ doz 90¢
In full cases.....₩ doz 75¢

Trowels—Lothrop's Brick and Plastering..dis 25 %
Reed's Brick and Plastering.....dis 15 %
Disston's Brick and Plastering.....dis 25 @ 25&10 %
Peace's Plastering.....dis 25 %
Clement & Maynard's.....dis 20 %
Rose's Brick.....dis 15 @ 20 %
Brade's Brick.....dis 25 %
Worrall's Brick and Plastering.....dis 20 %
Garden.....dis 70 %

Triers.—Butter and Cheese.....dis 25 %

Trucks, Warehouse, &c.
B. & L. Block Co.'s list, 1882.....dis 40 %

Tubes, Boiler.—See Pipe

Twine.

	BC.	B
No. 9, Flax Twine, ¼ and ½ ℔ Balls	22¢	50¢
No. 12, " " ¼ and ½ "	21¢	29¢
No. 18, " " ¼ and ½ "	18¢	28¢
No. 24, " " ¼ and ½ "	18¢	28¢
No. 36, " " ¼ and ½ "	16¢	27¢
No. 264, Mattrass, ¼ and ½ "	48 @ 50¢	
Chalk Line, Cotton, ½ ℔ Balls	22¢	
Mason Line, Linen, "	55¢	

2-Ply Hemp, ¼ and ½ ℔ Balls (Spring Twine).....11½¢
3-Ply Hemp, 1 ℔ Balls.....12 @ 12½¢
3-Ply Hemp, 1½ ℔ Balls.....11 @ 11½¢
Cotton Wrapping, 5 Balls to ℔.....15¢ @ 16¢
2, 3, 4 and 5 Ply Jute, ½ ℔ Balls.....10¢
Wool.....8½¢ @ 9¢
Paper.....13¢ @ 14¢
Cotton Mops—6, 9, 12 and 15 ℔ to doz.....18¢

Vises.
Solid Box.....dis 60 @ 60&5 %
Parallel—
Fisher & Norris Double Screw.....dis 15&10 %
Stephens'.....dis 25 @ 30 %
Parker's.....dis 20 @ 25 %
Wilson's.....dis 55 %
Howard's.....dis 40 %
Bonney's.....dis 40&10 %
Millers Falls.....dis 40 @ 40&10 %
Trenton.....dis 40&2 @ 40&10 %
Merrin's.....dis 15&20 %
Sargent's.....dis 60&10&10 %
Backus and Union.....dis 40 %
Double Screw Vise.....dis 15&10 %
Prentiss.....dis 20&5 @ 25 %
Simpson's Adjustable.....dis 40 %
Saw Filers—
Bonney's, Nos. 2 & 3.....₩ doz $15.00, dis 4 &10 %
Stearn's.....dis 33⅓&10 @ 33⅓&10&10 %
Stearn's Silent Saw Vises.....dis 33⅓ @ 35 %
Sargent's.....dis 66⅔&10 %
Hopkins'.....₩ doz $17.50 dis 10 %
Reading.....dis 40&10 %
Wentworth.....dis 20&10 %
Combination Hand Vise.....₩ gro, $42.00
Cowell Hand Vises.....dis 20 %
Bauer's Pipe Vises.....dis 10 %

Wagon Boxes.
Per lb.....3½¢

Wagon Jacks.
Daisy.....₩ doz $4.00, dis 25 %

Washer Cutters.
Smith's Patent.....₩ doz $13.00, dis 40&10&10 %
Johnson's.....₩ dos $11.00, dis 33⅓ %
Penny's.....₩ dos Pol. ₰4; Jap'd, $10, dis 55 %
Appleton's.....₩ doz $16.00, dis 60&10 %
Bonney's.....dis 30&10 %

Washers.

Size	¼	5-16	⅜	½	⅝	¾	1
Washers	7	5¾	4¼	3⅜	2¾	2¼	1¾

In lots less than 200 ℔, ₩ ℔, add ¼¢, 5-℔ boxes 1¢ to list.

Wedges.—Iron.....₩ ℔ 3½¢
Steel.....₩ ℔ 4 ¢

Well Buckets, Galvanized.
Hill's.....₩ doz ..12 qt., $4.25; 14 qt., $5.25
Iron Clad.....₩ doz., 14 qt., $4.25 @ $4.50
Whiting's Flat Iron Band.....₩ doz $4.25 @ $4.50
Whiting's Wired Top.....₩ doz $4.00 @ $4.25

Well Wheels—8 in., $2.25; 10 in., $2.70; 12 in., $3.25.

Wire.
Iron—
Market, Br. & Ann., Nos. 0 to 18.....dis 70&10 &75 %
Market, Copp'red, Nos. 0 to 18.....dis 70@70&5 %
Market, Galvanized, Nos. 0 to 18.....dis 65&5 %
Market Tin'd, Tinned list Nos. 0 to 18.....dis 67½ %
Stone Br. & Ann'd, Nos. 16 to 18, .dis 72½@72½&5 %
Stone, Bright & Ann'd, Nos. 19 to 26.....dis 75@75&5 %
Stone, Br. & Ann'd, Nos. 27 to 36.....dis 75&10&5 %
Stone, Tin'd, Tin'd list, Nos. 18 to 36..dis 70@70&10 %
Tinned Broom Wire, Nos. 18 to 24, list 75 &c@70&10
Galvanized Fence.....dis 65 %
Annealed Fence, Nos. 8 & 9.....dis 75 %
Annealed Grape, Nos. 10 to 14.....dis 75 %
Brass, list, Jan. 18 '84.....dis 15 @ 20 %
Copper, list Jan 18, 1884.....dis 20 @ 25 %
Baro Fence.....See Trade Report
Wire on Spools.....dis 65 %
Malin's Steel and Tinned Wire on Spools.....dis 40 %
Malin's Brass and Copper Wire on Spools.....dis 30 %
Cast Steel Wire.....dis 60 %
Stubs' Steel Wire.....$6.00 to 2, dis 30 %
Steel Music Wire, Nos. 12 to 30.....55¢ ₩ ℔
Picture Wire.....dis 60&10 %
Barb Wire Safety Guards.....₩ 1000 $9.00, dis 25 %
Wire Clothes Lines—See Lines.

Wire Cloth, Netting, &c.
Painted Screen Cloth, No. 34, ₩ 100 sq ft.....$1.90
Painted Screen Cloth, No 32, ₩ 100 sq. ft.....$2.00
Galvanized Wire Netting.....dis 70&10 @ 75 %

Wire Goods.—See Bright Wire Goods.

Wire Rope.—List May 1, 1886.....dis 33⅓ %

Wrenches.—American Adjustable.....dis 40 %
Baxter's Adjustable "S".....dis 40&10 @ 50 %
Baxter's Diagonal.....dis 40&10 @ 50 %
Coes' Genuine.....dis 55&3 %
Coes' "Mechanics'".....dis 55&10&3 %
Girard Standard.....dis 70&10 %
Lamson & Sessions' Engineers'.....dis 60&10 %
Lamson & Sessions' Standard.....dis 70&10 %
Coes' Pattern, Wrought.....
Girard Agricultural.....
Lamson & Sessions' Agricultural.....} dis 30 @ 30&5 %
Sterling Wrought.....
Bemis & Call's Patent Combination.....dis 35 %
Bem's & Call's Merrick's Pattern.....dis 35 %
Bemis & Call's Brigg's Patt.....dis 25 %
Bemis & Call's Cylinder or Gas Pipe.....dis 40&5 %
Remis & Call's No. 3 Pipe.....dis 35&5 %
Aiken's Pocket (Bright).....$3.00, dis 50&10 %
The Favorite Pocket (Bright).....₩ doz $4.00, dis 40%
Webster's Patent Combination.....dis 35 %
Boardman's.....dis 30&10 %
Always Ready.....dis 25&5 %
Alligator.....dis 50 %
Donohue's Engineer.....dis 10&10 %
Acme, Bright.....dis 60&2 %
Acme, Nickeled.....dis 10&2 %
Walker's.....dis 55&2 %
Diamond.....dis 40 %
Diamond Patent Steel.....dis 40 %

Wringers, Clothes.
List Jan. 10 1888, $2.50 off.

Wrought Goods.
Staples Hooks, &c., is Jan. 12, '87.dis 80&20@50&2 %

Extra 10@10&5 % generally given.

CURRENT METAL PRICES.

SEPTEMBER 26, 1888.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

IRON AND STEEL.

Bar Iron from Store.

Common Iron:
¾ to 2 in. round and square.. } ₩ lb 1.90 @ 2.00¢
1 to 6 in. x ⅝ to 1 in..... }
Refined Iron:
¾ to 2 in. round and square.. }
1 to 4 in. x ⅜ to 1½ in..... } ₩ lb 2.10 @ 2.2¢
4½ to 6 in. x ⅝ to 1 in ..... }
1 to 6 in. x ¼ and 5-16 ..... ₩ lb 2.30 @ 2 4¢
Rods—⅝ and 11-16 round and sq.. ₩ lb 2.20 @ 2.3¢
Bands—1 to 6 x 3-16 to No. 12..... ₩ lb 2.30 @ 2.4¢
"Burden Best" Iron, base price.. ₩ lb 3.00 @ ... ¢
Burden's "H. B. & S." Iron, base price... ₩ lb 2 80 @ ....¢
"Ulster"..... lb 3.10 @ ....¢
Norway Rods ..... 4 00 @ 5.00¢

Merchant Steel from Store.

Per pound.

Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots..... 2¾¢ @ 3¢
Best Cast Steel, base price in small lots 8¾¢ @ 9¢
Best Cast Steel Machinery, base price in small lots..... 5½¢ @ 6¢

For Classification and Extras adopted by the Merchant Steel Association of the United States, June 1, 1888, see *The Iron Age*, June 21, 1888.

Sheet Iron from Store.

	Common American.	R. G.	Cleaned.
10 to 16	₩ lb 2.75 @ 2.80¢	3.25 @	¢
17 to 20	₩ lb 2.85 @ 3 00¢	3.25 @	3.50 ¢
21 to 24	₩ lb 3.00 @ 3.10¢	3.50 @	¢
25 and 26	₩ lb 3 20 @	3.50 @	¢
27	₩ lb 3.35 @ 3.37½¢	3.75 @	¢
28	₩ lb 3.50 @ ¢	4.00 @	¢
	B. B.	2d qual.	
Galv'd, 14 to 20,	₩ lb, 4.50 @	4.88 @	¢
Galv'd, 21 to 24,	₩ lb, 4.87½ @	4.75 @	¢
Galv'd, 25 to 26,	₩ lb, 5 25 @	5.12 @	¢
Galv'd, 27	₩ lb, 5.62½ @	5.48 @	¢
Galv'd, 28	₩ lb, 6 00 @	5.85 @	¢
Patent Planished	₩ lb A 10¢	B, 9¢	
Russia	₩ lb 9½¢ @ 10¢		
American Cold Rolled B. B	₩ lb 5¢ @ 7¢		

English Steel from Store.

Best Cast	₩ lb 15 ¢
Extra Cast	₩ lb 16½ @ 17 ¢
Swaged, Cast	₩ lb 16 ¢
Best Double Shear	₩ lb 15 ¢
Blister, 1st quality	₩ lb 12½¢
German Steel, Best	₩ lb 10 ¢
2d quality	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality	₩ lb 15 ¢
2d quality	₩ lb 14 ¢
3d quality	₩ lb 12½¢

METALS.

Tin.

	Per lb
Banca, Pigs	25¢
Straits, Pigs	25¢
English, Pigs	24½¢
Straits in Bars	26¢

Tin Plates.

	Charcoal Plates.—Bright.	Per box.
Melyn Grade	IC, 10 x 14	$6 00
" "	IC, 12 x 13	6.25
" "	IC, 14 x 20	6.00
" "	IC, 20 x 28	12.50
" "	IX, 10 x 14	7.50
" "	IX, 12 x 12	7 75
" "	IX, 14 x 20	7.50
" "	IX, 20 x 28	15 50
" "	DC, 12½ x 17	5.75
" "	DX, 12½ x 17	7.25
Calland Grade	IC, 10 x 14	$6.00
" "	IC, 12 x 12	6 25
" "	IC, 14 x 20	6.00
" "	IX, 10 x 14	7.50
" "	IX, 12 x 12	7.75
" "	IX, 14 x 20	7.50
Allaway Grade	IC, 10 x 14	$5.37½ @ ..
" "	IC, 12 x 12	5.50 @ ....
" "	IC, 14 x 20	5.87½ @ ....
" "	IC, 20 x 28	10.75 @ ....
" "	IX, 10 x 14	6.25 @ ....
" "	IX, 12 x 12	6 50 @ ....
" "	IX, 14 x 20	6.25 @ ....
" "	IX, 20 x 28	13.00
" "	DC, 12½ x 17	.00 @ ...
" "	DX, 12½ x 17	6.00 @ ....

Coke Plates—Bright.

Steel Coke.—IC, 10 x 14, 14 x 20		$5.00 @ ....
	10 x 20	7.50 @ 7.65
	20 x 28	10.25 @ ...
	IX, 10 x 14, 14 x 20	5.75
BV Grade.—IC, 10 x 14, 14 x 20		4.70 @ ..

Charcoal Plates.—Terne.

Dean Grade.—IC, 14 x 20		$4.62½ @ ....
	20 x 28	9 25 @ ....
	IX, 14 x 20	5.62½ @ ....
	20 x 28	11.37½ @ ....
Abecarne Grade.—IC, 14 x 20		4.50 @ ....
	20 x 28	9.00 @ ....
	IX, 14 x 20	5.50 @ ...
	20 x 28	10.80

Tin Boiler Plates.

IXX, 14 x 26	112 sheets	$12.50 @ $12.75
IXX, 14 x 28	112 sheets	12 75 @
IXX, 14 x 31	112 sheets	14.25 @

Copper.

Duty: Pig, Bar and Ingot, 4¢; Old Copper, 3¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 45 % ad valorem.

Ingot.

Lake..... @ 18¼¢
"Anchor" Brand..... @ 17.50¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, December 10, 1887, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72		25	25	25	26	27	28	31	33
30		72	25	25	25	26	28	30	34	...
36	96		25	25	25	27	29	33	36	....
36		96	25	25	26	28	30	34	38	....
48	96		25	25	27	29	31	35	....	....
48		96	25	25	28	30	32	36	....	....
60	96		25	25	30	32	37	....	....	....
60		96	25	26	31	....	....	....	....	....
84	96		26	27	..	....	....	....	....	....
84		96	27	28	....	....	....	....	....	....
Over 84 in. wide			28	30	...	....	....	....	....	....

All Bath Tub Sheets	16 oz.	14 oz.	12 oz.	10 oz.	
Per pound	$0.28	0.30	0.32	0 35	

Bolt Copper, ⅝ inch diameter and over, per pound..... 25¢
Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.
Circles, over 60 inches diameter, up to 96 inches diameter, inclusive, 5 cents per pound advance over lowest prices of Sheet Copper of the same thickness.
Circles, over 96 inches diameter, 6 cents per pound advance over lowest prices of Sheet Copper of the same thickness.
Segment and Pattern Sheets, 3 cents per pound advance over price of sheets required to cut them from.
Cold or Hard Rolled Copper, 14 ounces per square foot and heavier, 1 cent per pound over the foregoing prices.
Cold or Hard Rolled Copper, lighter than 14 ounces per square foot, 2 cents per pound over the foregoing prices.

Copper Bottoms, Pits and Flats.

Per pound.

14 ounce to square foot and heavier..... 28¢
12 ounce and up to 14 ounce to square foot..... 29¢
10 ounce and up to 12 ounce..... 31¢
Circles less than 8 inches diameter 2 cents per pound additional.
Circles over 13 inches diameter are not classed as Copper Bottoms.

Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each..... 8¢
Tinning sheets on one side, 30 x 60 each..... 30¢
For tinning boiler sizes, 9 in (sheets 14 in. x 60 in.), each..... 15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each..... 12¢
For tinning boiler sires, 7 in. (sheets 14 in. x 52 in.) each..... 12¢
Tinning sheets on one side, other sizes, per square foot..... 2½¢
For tinning both sides double the above prices.

Planished Copper.

Planished Copper List May 5, 1888..... Net

Brass and Copper Tubes.

Seamless Copper.		Seamless Brass.	
⅝ inch	₩ lb 50¢	⅝ inch	₩ lb 47¢
½ "	" 44¢	½ "	" 41¢
⅜ "	" 42¢	⅜ "	" 39¢
¾ "	" 40¢	¾ "	" 37¢
⅞ "	" 39¢	⅞ "	" 36¢
1 "	" 37¢	1 "	" 34¢
1½ "	" 34¢	1½ "	" 31¢

Roll and Sheet Brass.

Discount from list..... 10 @ 15 %

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb.
Western Spelter..... 5½¢ @ 6¢
"Bergenport"..... 8¾¢
"Bertha"..... 7¾ @ 8¢

Zinc.

Duty; Sheet, 2½¢ ₩ lb.
600 lb casks..... 6½¢
Per lb..... 7¢

Lead.

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets, 3¢ ₩ lb.
American..... 5½¢
Newark..... 5½¢
Bar..... 6¢
Pipe, subject to trade discount..... 7½¢
Tin-Lined Pipe, subject to trade discount..... 15¢
Block Tin Pipes, subject to trade discount..... 45¢
Sheet, subject to trade discount..... 8¢

Solder.

½ @ ½ (Guaranteed)..... 16¢
Extra Wiping..... 13½¢

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson..... ₩ lb 13¾ @ 14¢
Hallett s..... " 11½¢

Plumbers' Brass Work.

	Discount per cent.
Ground Bibbs and Stops	55&10&2
Ground Stops, Hydrant Cocks, &c	55&10&2
Corporation Cocks	55&10&2
Corporation Cocks, "Mueller" Pattern, from Western list	55&10&2
Ground Basin and Shampooing Cocks	50&10&2
Compression Basin Cocks	50&10&2
Compression Basin and Sink Cocks	50&10&2
Compression Pantry Cocks	50&10&2
Compression Double Basin and Shampooing Cocks	50&10&2
Compression Double Bath Cocks	50&10&2
Compression Bibbs, Urinal Cocks, Sill Cocks, Stops, Hopper Cocks, Hydrant Cocks and Ball Cocks	50&10&2
Basin Plugs and Basin Grates	55&10&2
Bath and Wash Trav Plugs	55&10&2
Bath Wastes and Washers, Bath and Basin Valves, Sewer and Vacuum Valves, Cistern Valves, Pump Valves and Strainers, Ship Closet Valves and Suction Baskets	55&10&2
Basin Clamps, Basin Joints and Strainers	55&10&2
Boiler Couplings, Ground Face, per set	dis 10
$1.25	
Boiler Couplings, Plain Face, per set $1.20	dis 10
Water Back Valve and Plain Couplings, Soldering Nipples and Unions	55&10&2
Union Joints	60&10&2
Hydrant Nozzles, Handles and Guides, Sockets and Clamps, Street Washer Screws and Guides	55&10&2
Hose Goods	55&10&2

Steam and Gas Fitters' Brass and Iron Work.

	Discount per cent.
Brass Globe Valves	60&10&2
Finished Brass Globe Valves, with Finished Brass Wheels	40&10&2
Brass Globe Valves, with Patent Wood Wheels	60&10&2
Brass Globe Angle and Corner Valves	60&10&2
Brass Radiator Angle Valves	60&10&2
Brass Radiator Angle Valves, Frink's Patent	60&10&2
Brass Cross and Check Valves	60&10&2
Brass Check Valves	60&10&2
Brass Hose Valves	60&10&2
Brass and Iron Frink Valves	60&10&2
Brass Safety Valves	60&10&2
Brass Vacuum Valves	50&10&2
Brass Whistle Valves	60&10&2
Brass Balance, Back Pressure and Foot Valves	50&10&2
Brass Butterfly and Throttle Valves	50&10&2
Brass Pump Valves	50&10&2
Brass Steam Cocks	57½&10&2
Brass Service, Meter and Union Meter Cocks	57½&10&2
Brass Whistles, Water Gauges and Oil Cups	60&10&2
Brass Hollow Plug, Tallow and Globe Oil Cups	50&10&2
Brass Lubricators	60&10&2
Brass Air Valves	60&10&2
Brass Air Cocks	60&10&2
Brass Gauge Cocks	55&10&2
Brass Cylinder Cocks and Steam Bibbs	50&10&2
Brass Swing Joints and Expansion Joints	50&10&2
Brass Test Pumps	50&10&2
Brass Steam Fittings, Rough	60&10&2
Brass Steam Fittings, Finished	2 &10&2
Brass Union Joints	60&10&2
Brass Soldering Unions and Nipples	55&10&2
Brass Hose Fittings, Fusible and Boiler Plugs	55&10&2
Iron Body Globe, Angle, Cross and Check Valves	65&10&2
Iron Body Safety, Throttle, Back Pressure, Butterfly and Foot Valves	65&10&2
Iron Cocks, all Iron	65&10&2
All Iron Valves	65&10&2

Miscellaneous.

	Discount per cent.
Cast Iron Fittings	70&10
Plugs and Bushings	75&10
Malleable Iron Unions	67½
Malleable Iron Fittings	25

Paints.

Black, Lamp—Coach Painters'	₩ lb 22 @ 24¢
" Ordinary	6¢
Black, Ivory Drop, fair	12 @ 15¢
" " best	23¢
Black Paint, in oil.....kegs, 8¢; assorted cans,	11¢
Blue, Prussian, fair to best	40 @ 55¢
" " " in oil	45 @ 55¢
" Chinese dry	70¢
" Ultramarine	18 @ 30¢
Brown, Spanish	1¼¢
" Van Dyke	10 @ 12¢
Dryers, Patent American...ass'd cans, 9¢; kegs	7¢
Green, Chrome	15 @ 23¢
Green, Chrome in oil	14 @ 18 @ 25¢
Green, Paris	good, 20¢; best, 25¢
Green, Paris in oil	good, 30¢; best, 35¢
Iron Paint, Bright Red	₩ lb 2½¢
Iron Paint, Brown	₩ lb 1½¢
Iron Paint, Purple	₩ lb 3¢
Iron Paint, Ground in oil, Bright Red	₩ lb 6½¢
Iron Paint, Ground in oil, Red	₩ lb 5½¢
Iron Paint, Ground in oil, Brown	₩ lb 5½¢
Iron Paint, Ground, Purple	₩ lb 6¢
Litharge	6½¢
Mineral Paints	2 @ 4¢
Orange Mineral	10¢
Red Lead, American	6½¢
Red Venetian (Eng.) dry	$1.65 @ $1.70
Red Venetian in oil	asst'd cans, 11¢; kegs, 8¢
Red Indian Dry	9 @ 13¢
Rose Pink	10 @

THE IRON AGE

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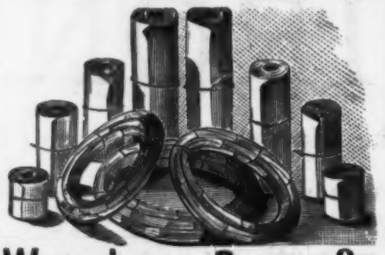

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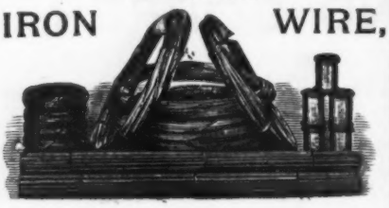

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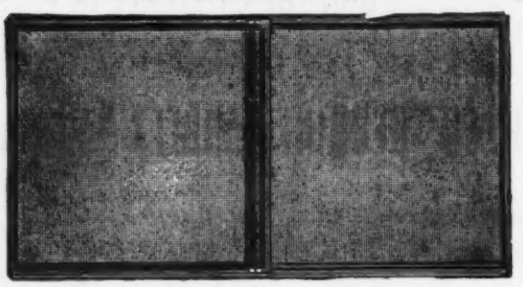

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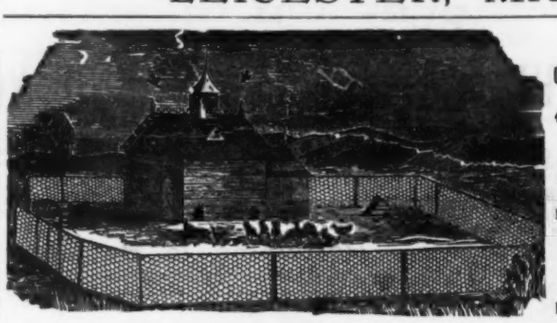

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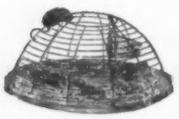

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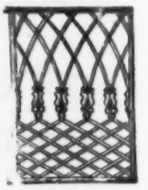

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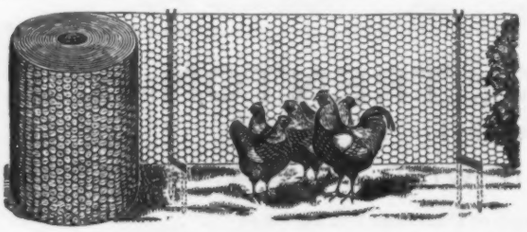

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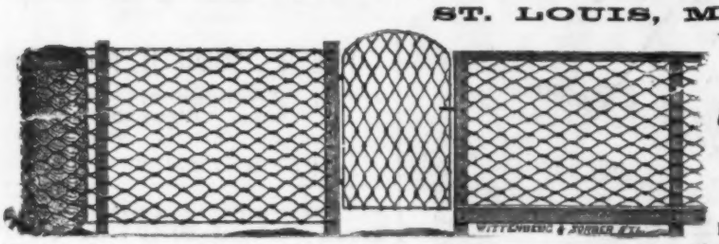

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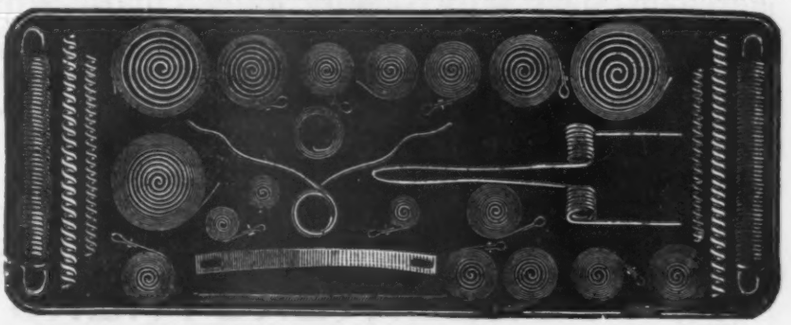

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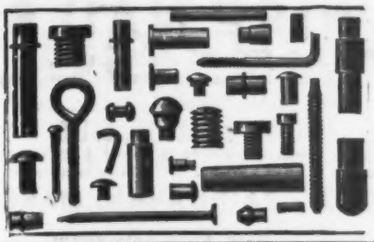

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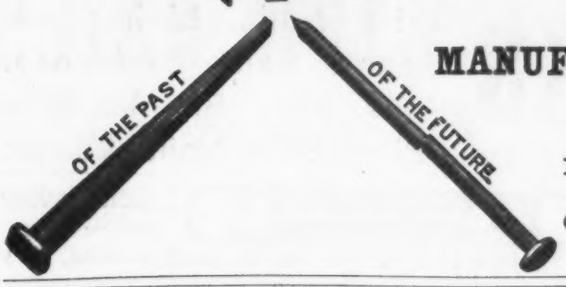

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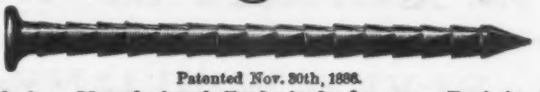

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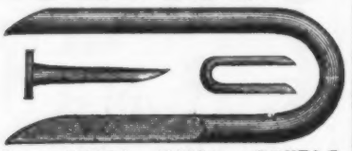

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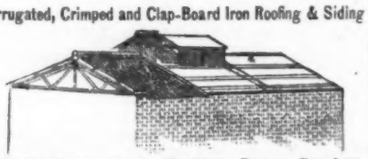

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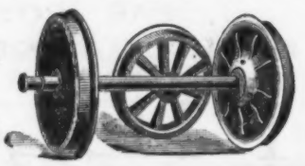

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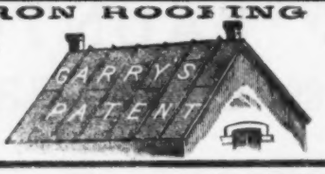

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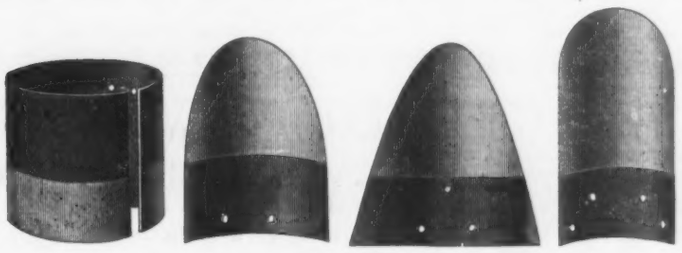

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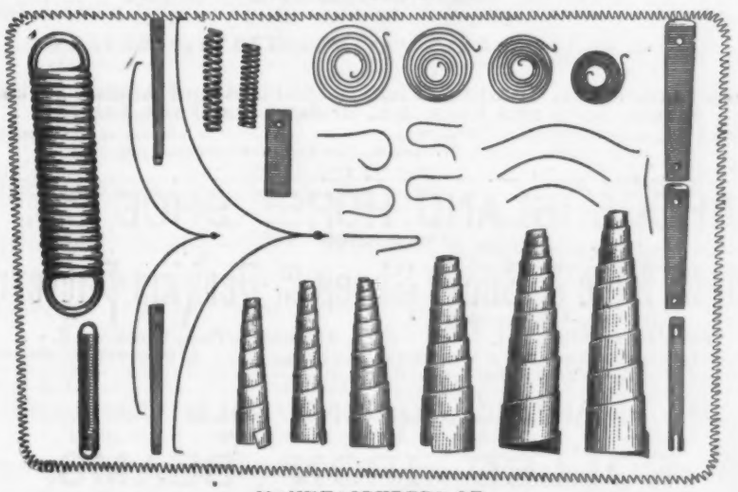

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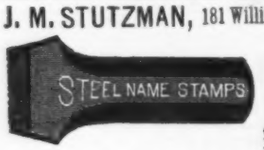

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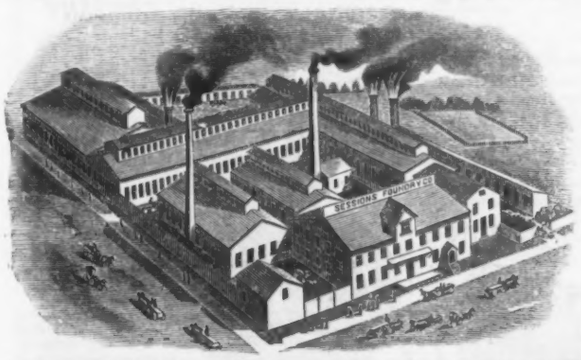

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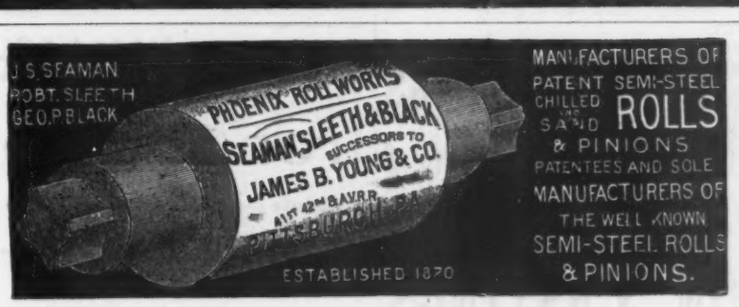

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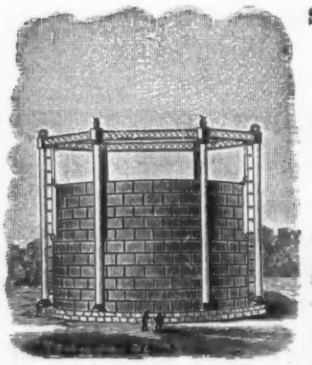
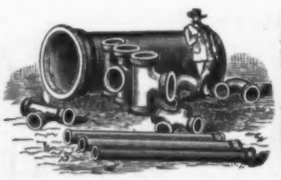
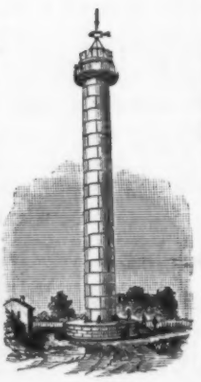

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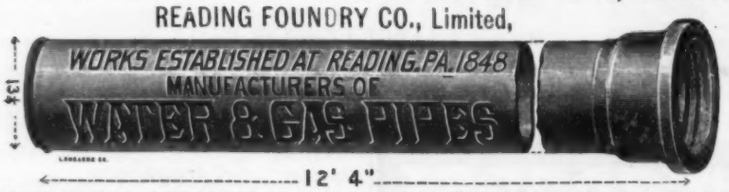

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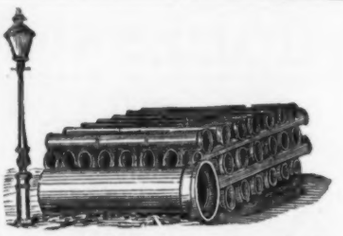

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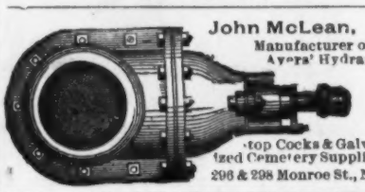

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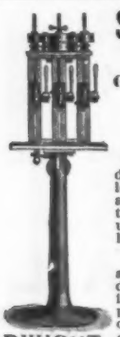

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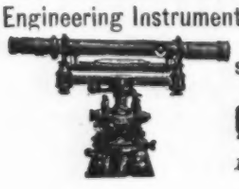

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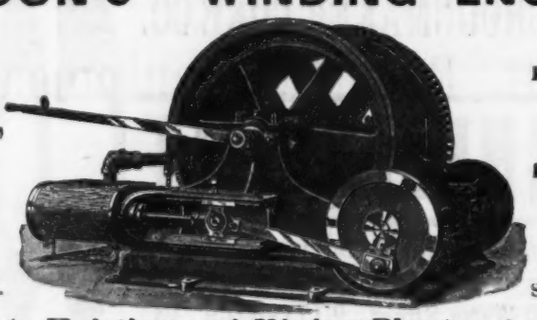

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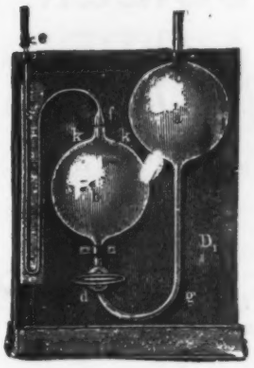

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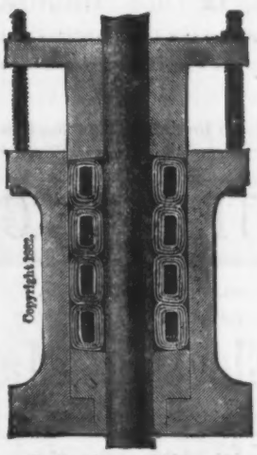

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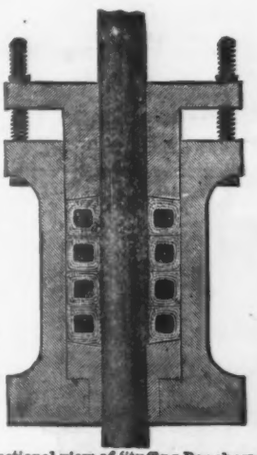

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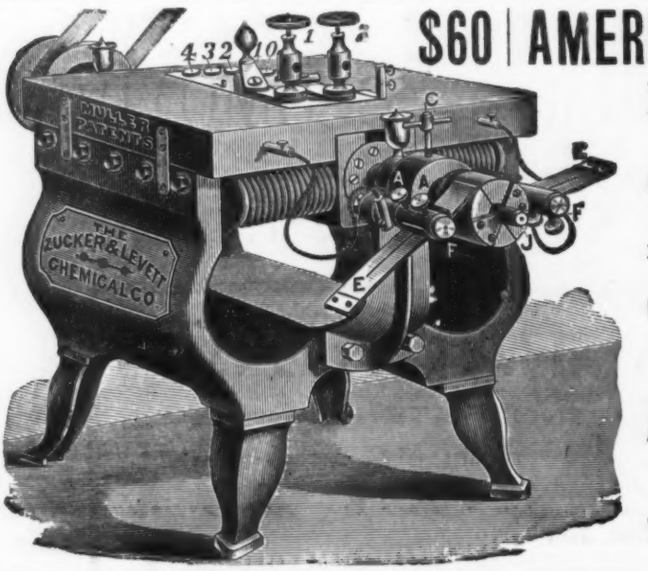

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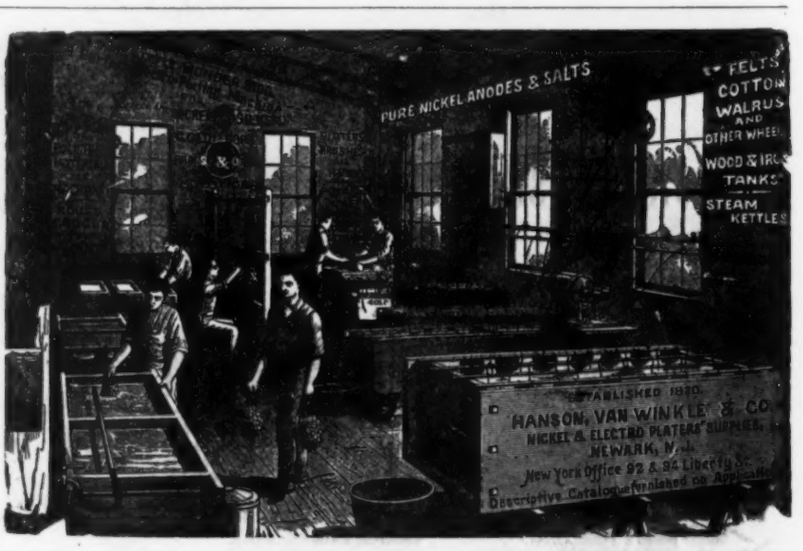

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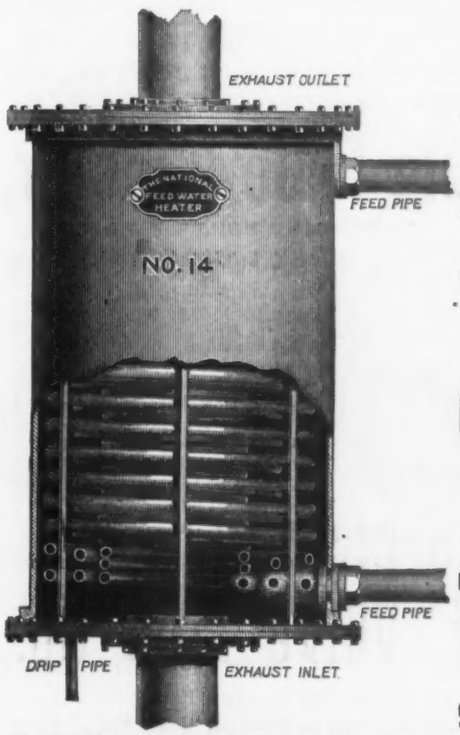

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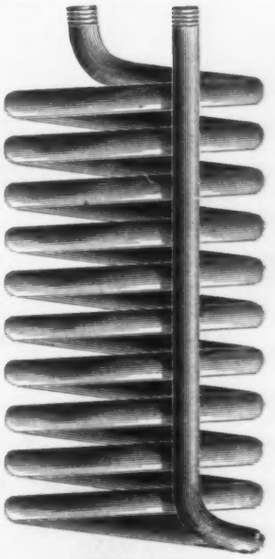

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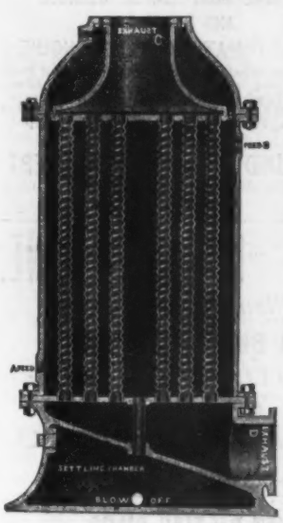

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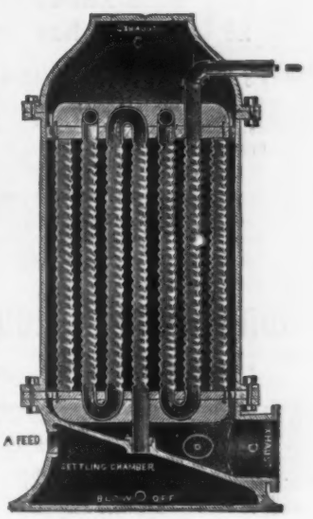

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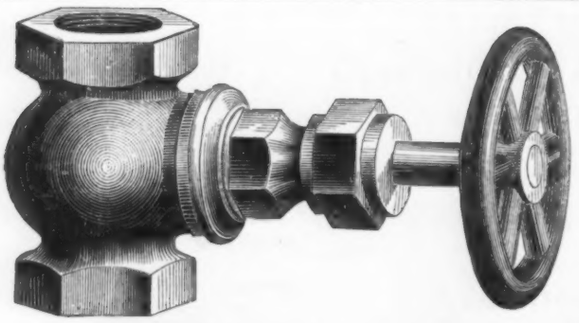

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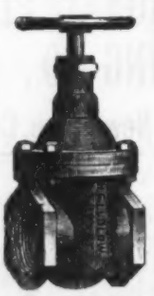

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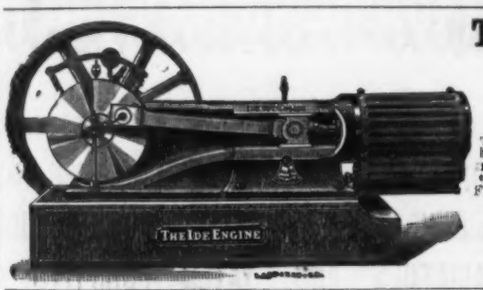

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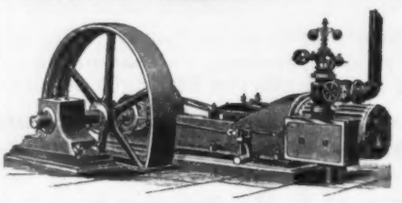

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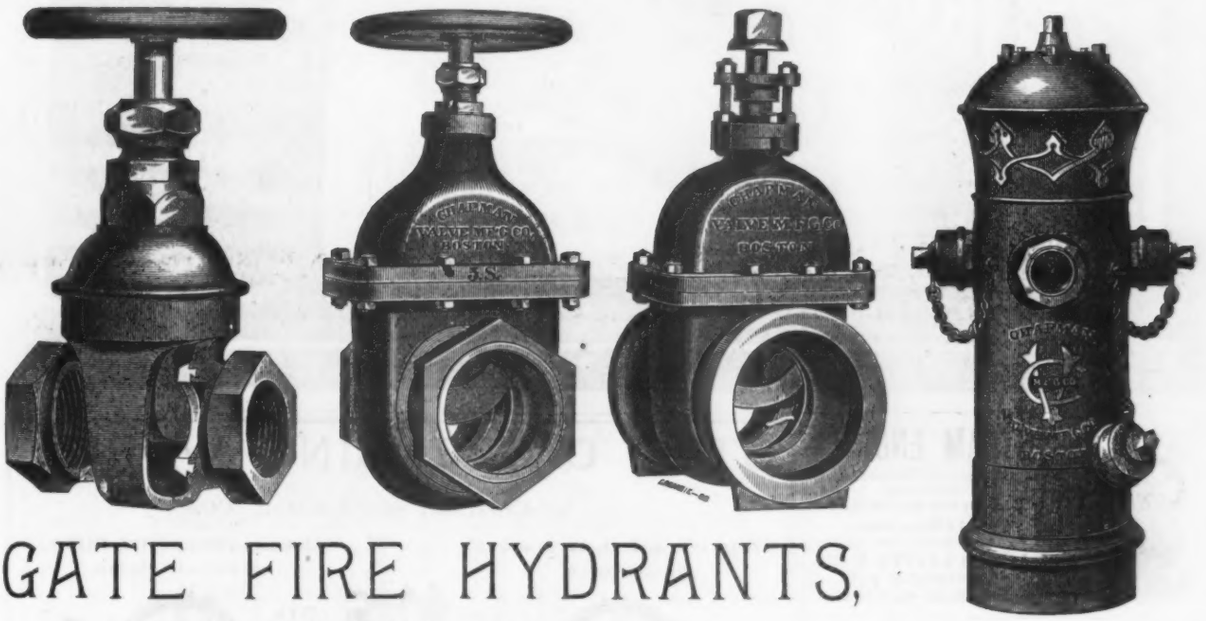

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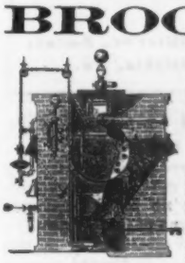

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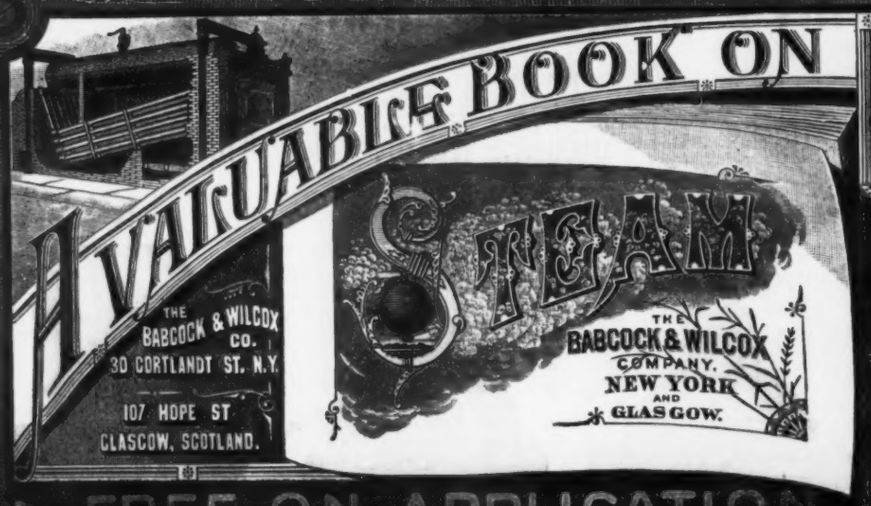

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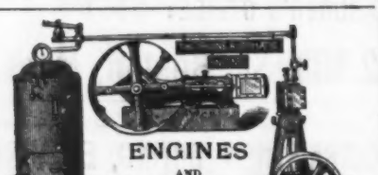

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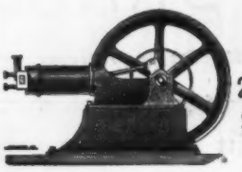

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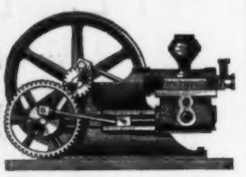

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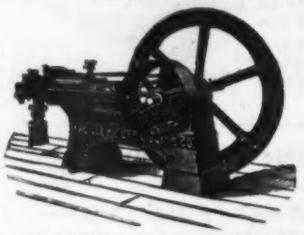

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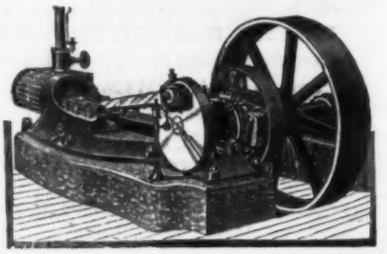

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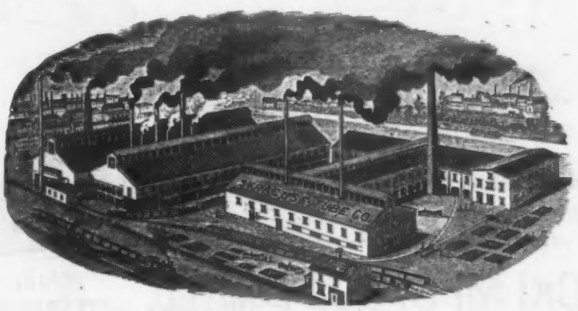

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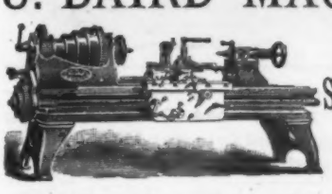

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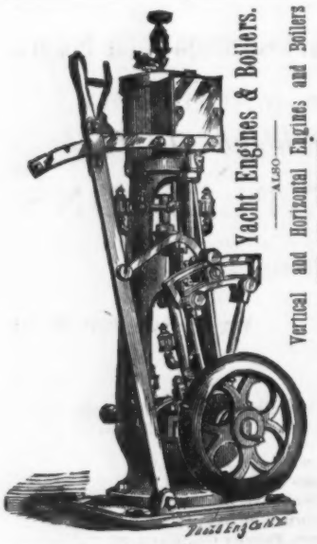

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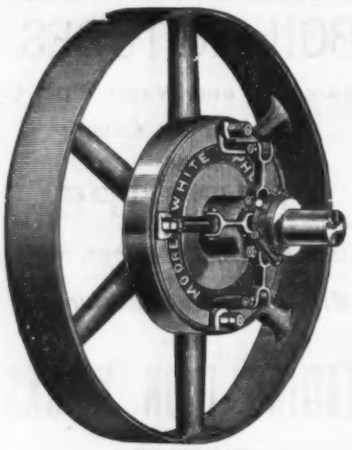

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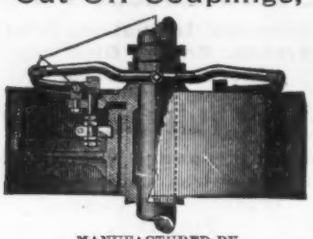

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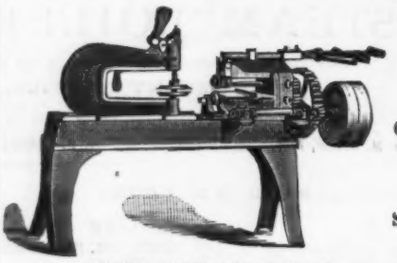

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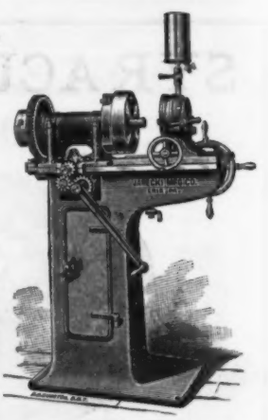

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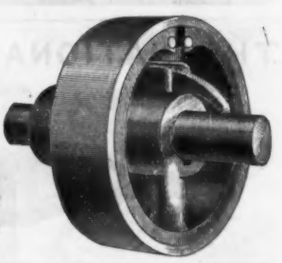

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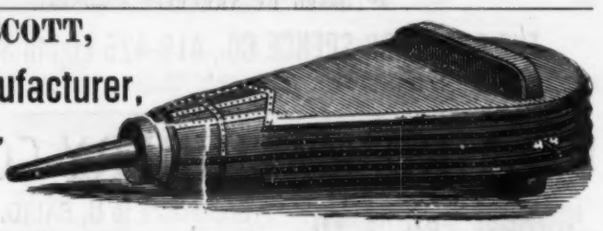

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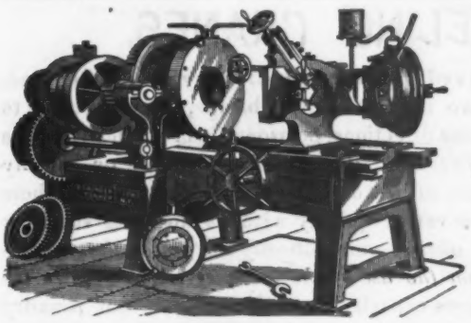

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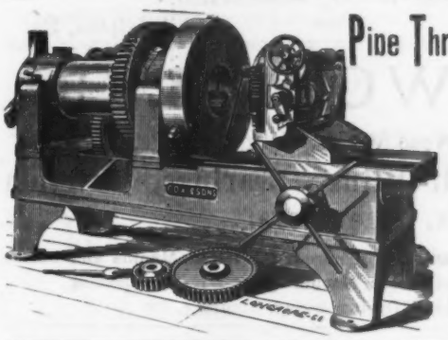

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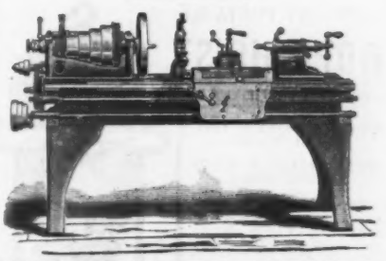

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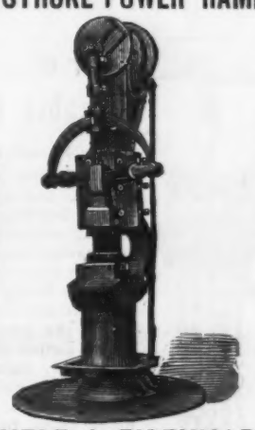

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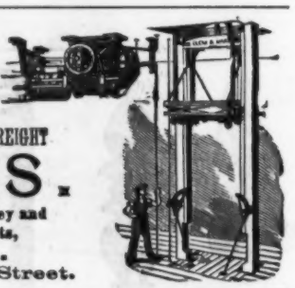

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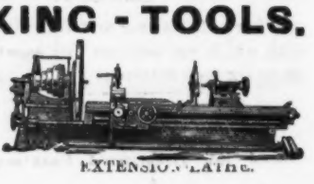

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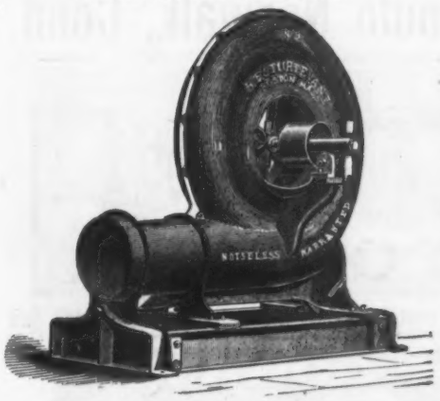

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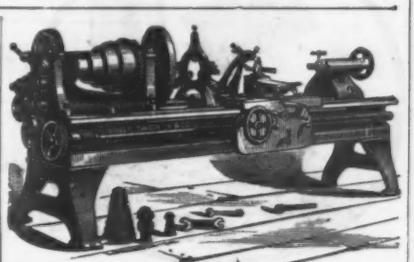

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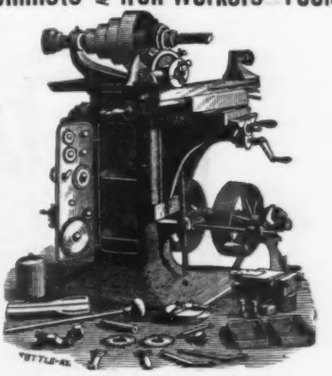

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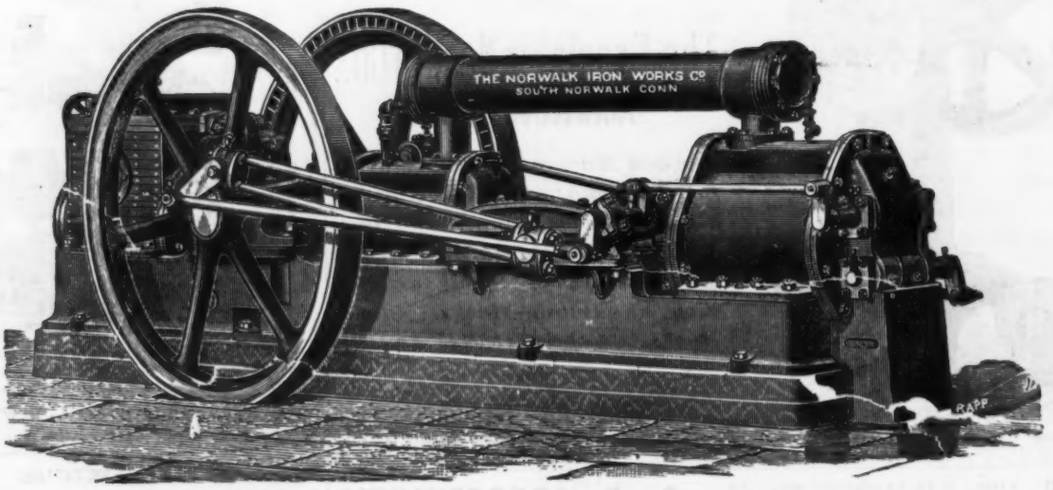

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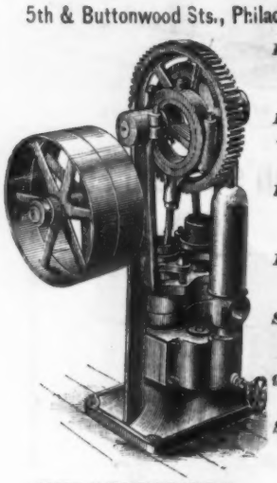

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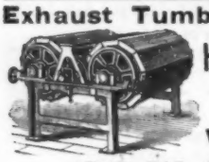

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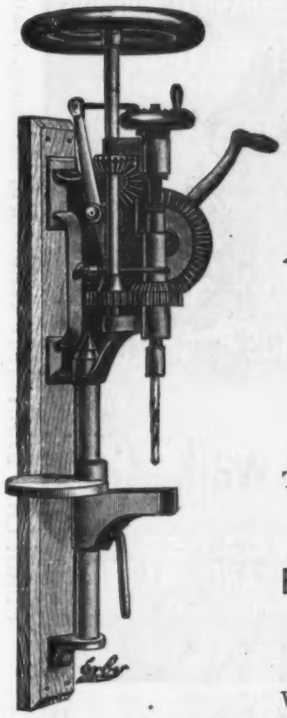

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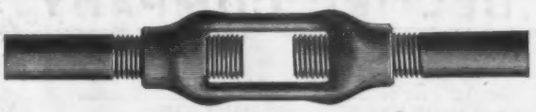
BEST.  CHEAPEST.

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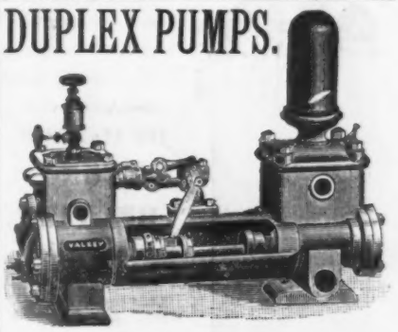

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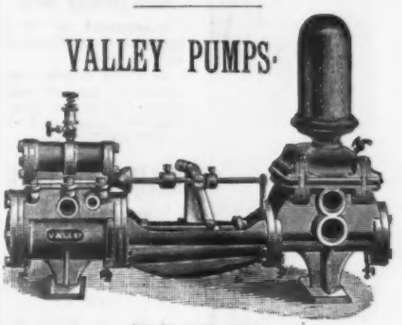

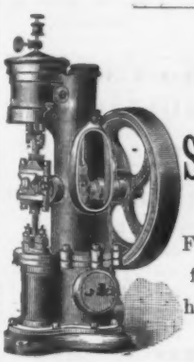

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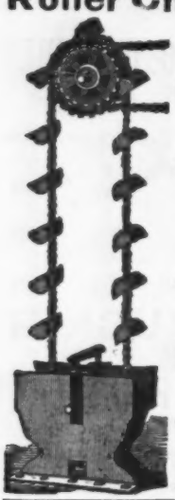

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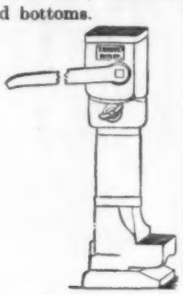

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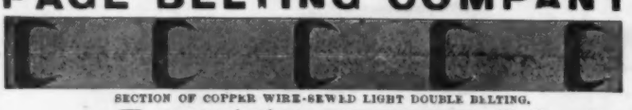

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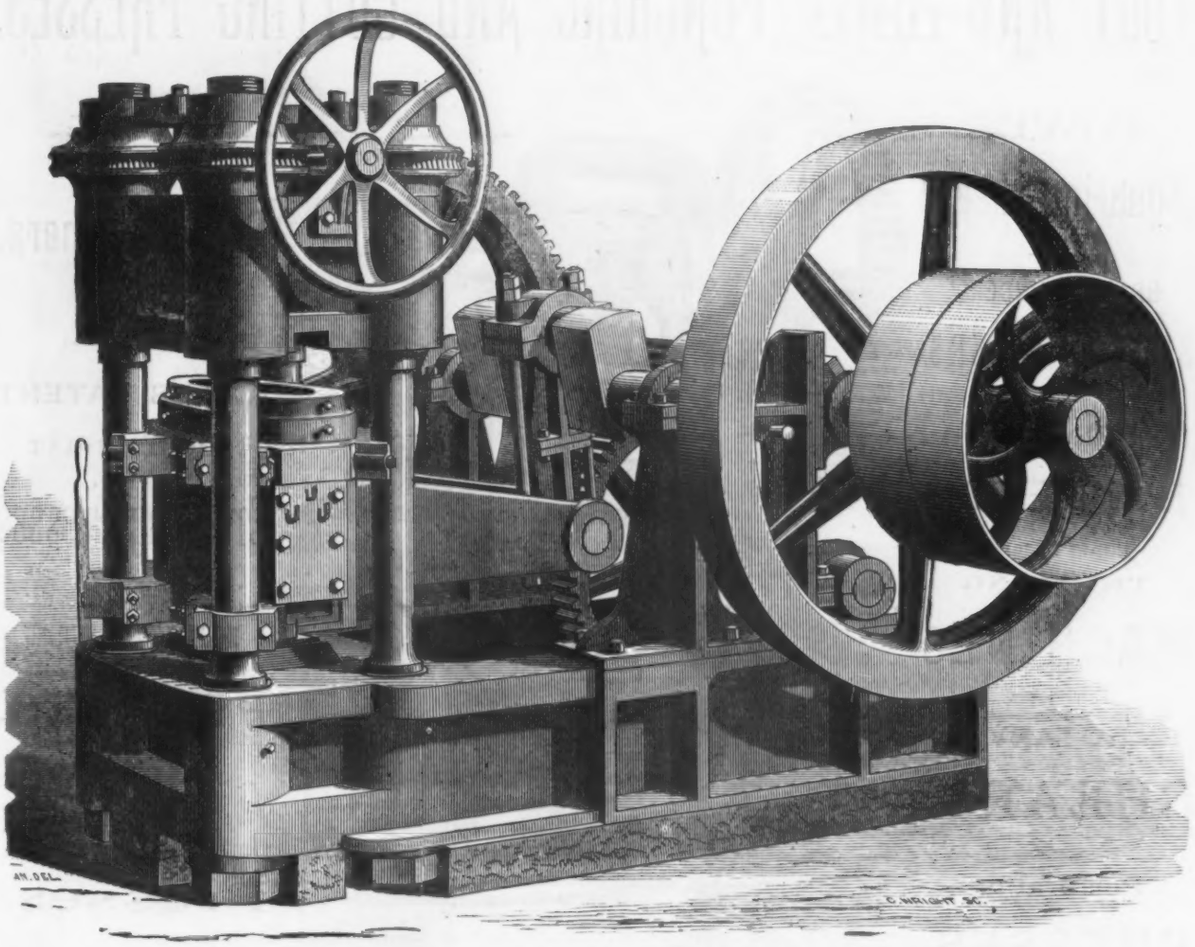

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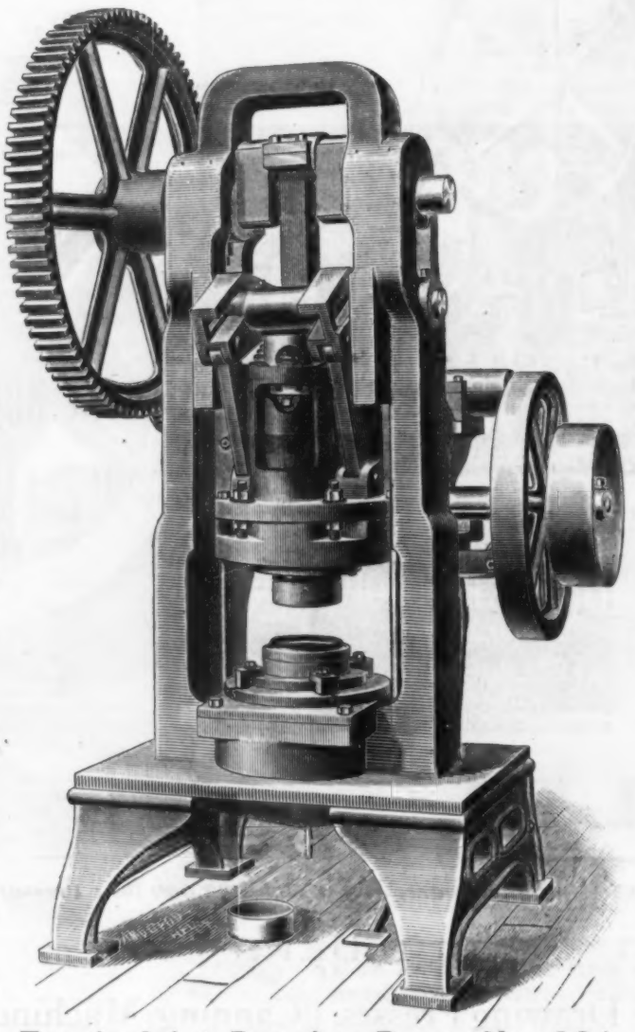

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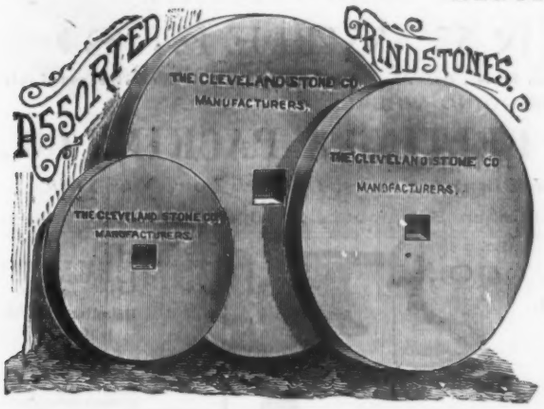

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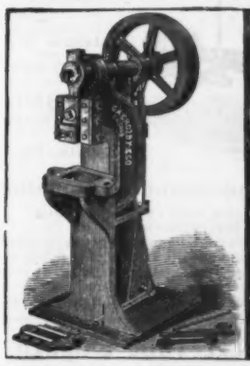

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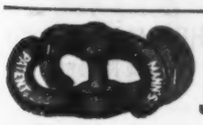

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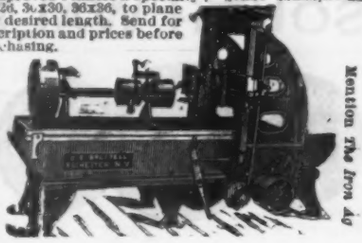

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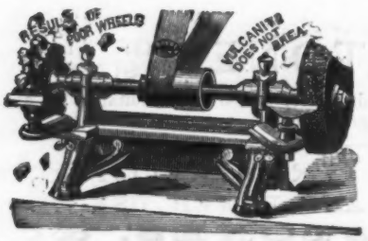

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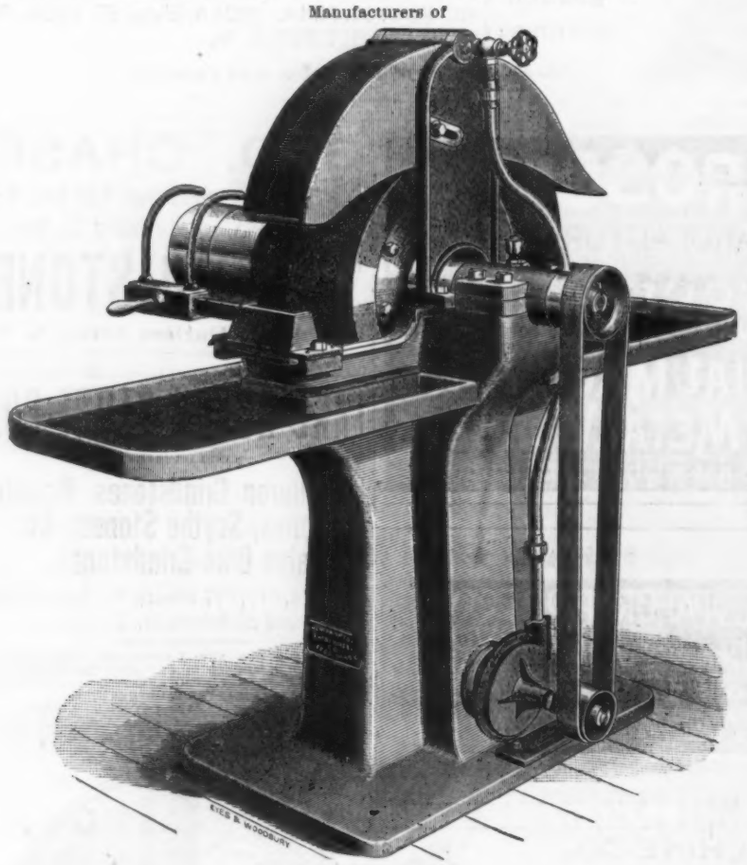

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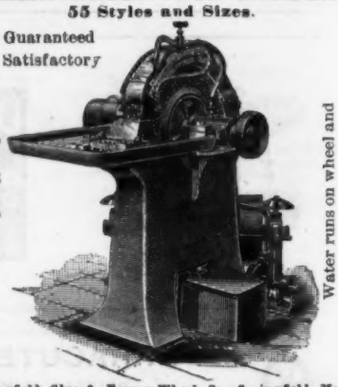

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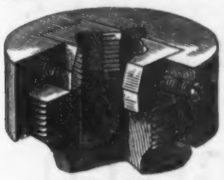

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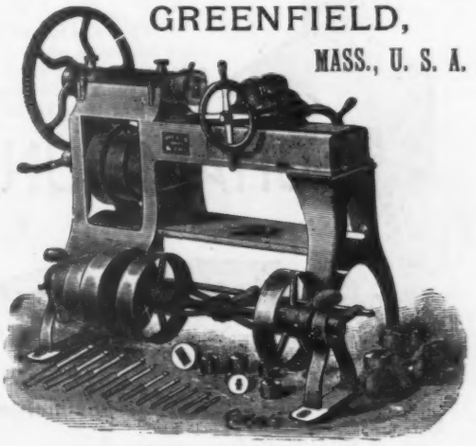

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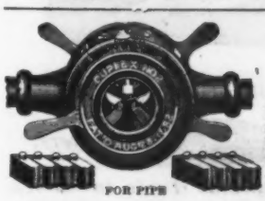

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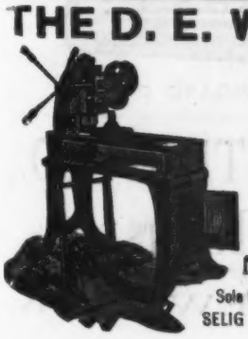

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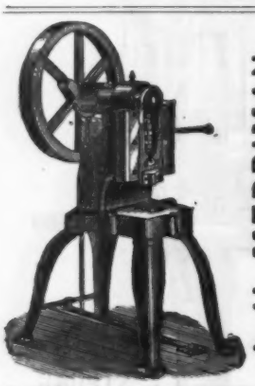

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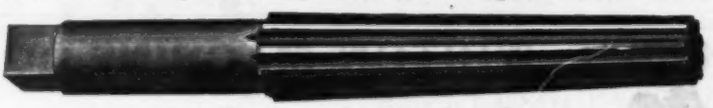

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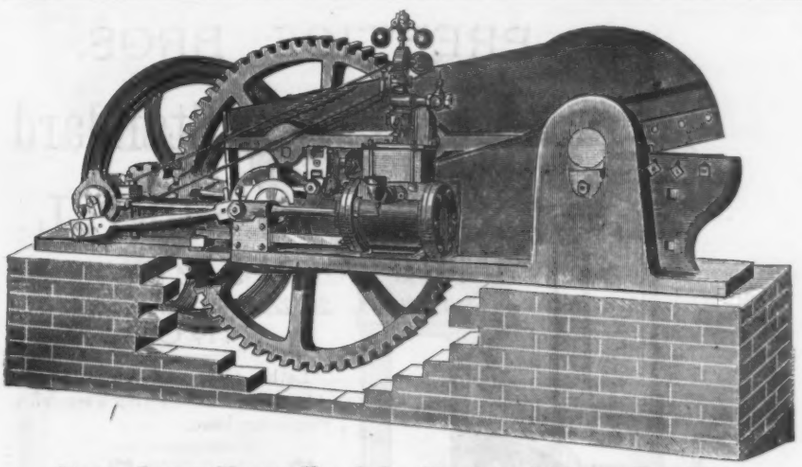

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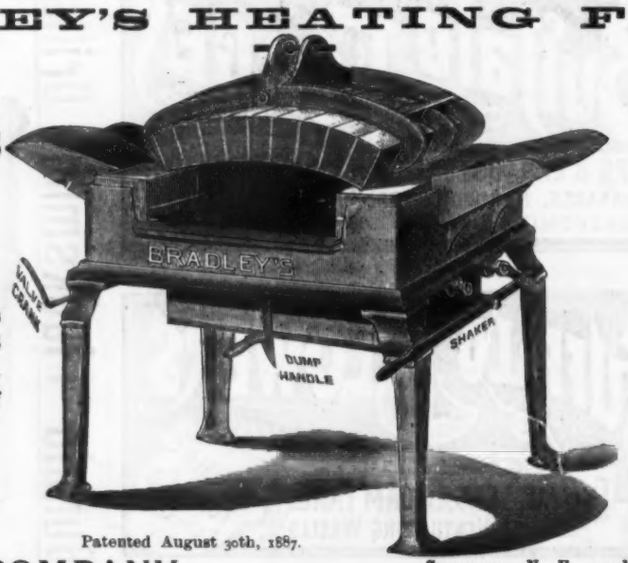

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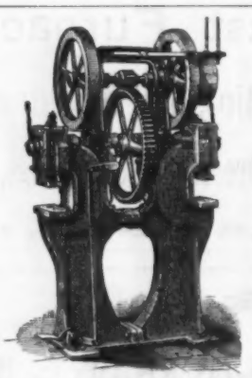

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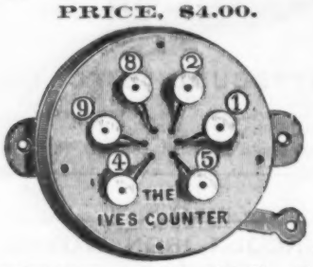

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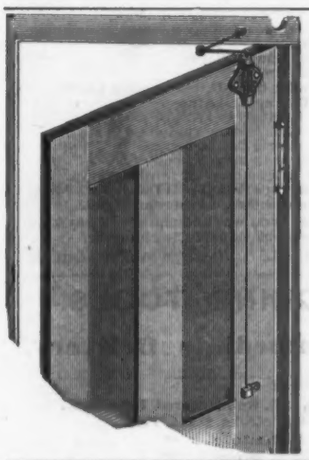

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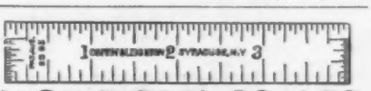

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One 16 x 6-ft. N. Y. Steam Engine Co.'s Lathe.
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25 in. " " " " "	650
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10 in. x 10 in. x 2 ft. Planer	180
16 in. x 16 in. x 4 ft. "	360
22 in. x 22 in. x 5 ft. "	450
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26 in. x 26 in. x 8 ft. "	700
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30 in. x 30 in. x 12 ft. "	1150
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12 in. x 4 ft. " "	72
12 in x 5 ft. " "	75
12 in. x 6 ft. " "	78
15 in. x 6 ft. " "	100
15 in. x 8 ft. " "	107

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1, 2, 3 and 4 Spindle Gang Drills, $120 $135, $150. $165.

14 in x 6 ft. $225

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Pond Planer, 42 x 42 x 20 ft.
Upright Boring Mill, 32 in. swing.
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En ine La'he, 24 in. swing, 12 ft. bed.
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One Crane (iron) about 5 tons.
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Boshes, Puddle Furnace Castings, Steam Piping (cast and wrought iron).
Blast Pipe, Cinder Buggies, Tanks, Rolls and Housings, &c.
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The time for depositing stock and payment of subscriptions expires on July 11, 1888, 3 P. M.

Payments should be made by check on New York to the Union Trust Company, and should be accompanied by the stock duly endorsed in blank, and an authorization to the Union Trust Company; blank forms for this authorization and copies of circulars can be obtained upon application at the Union Trust Co.'s office, or at Room 19, 7th floor, Mills Building. Interest at the rate of 4% will be allowed on subscriptions from the date of payment.

For the Reorganization Committee,

H. R. BALTZER, Chairman,

NEW YORK, June 21, 1888.

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PROPOSALS FOR STEEL FOR USE IN THE CONSTRUCTION OF THE UNITED STATES ARMORED BATTLE-SHIP "TEXAS," AT THE NAVY YARD, PORTSMOUTH, VIRGINIA.—NAVY DEPARTMENT, Washington, D. C., June 21, 1888. Under authority conferred by an act of Congress entitled "An act to increase the naval establishment," approved August 3 1886, (24 Statutes at Large, page 215,) sealed proposals are hereby invited, and will be received at this Department until 12 o'clock noon, on Monday, the 3d day of July, 1888, for furnishing the following classes of material for use in the construction of said ship: CLASS A.—*Steel plates.*—About nine hundred and twenty (920) tons of steel plates from 2½ to 25 pounds per square foot. CLASS B.—*Steel shapes.*—About five hundred and three (503) tons of steel shapes, as follows: About two hundred and seventy (270) tons of angle-bars of various sizes; about one hundred and thirty-two (132) tons of angle and T bulb beams with proper curvature, from 11 to 24½ pounds per lineal foot; about ten (10) tons of T-bars, of 8 pounds per lineal foot; about ninety one (91) tons of channel-bars, of 10, 15 and 25 pounds per lineal foot. CLASS C.—*Steel rivets.*—About one hundred (100) tons steel rivets, from ⅝ inch to 1¼ inch diameter. CLASS D.—*Steel castings.*—About one hundred and twenty (120) tons of steel castings, of various shapes, including stem, stern post, hawse-pipes, riding and mooring bitts, chain-pipes etc. The tons of material herein called for to be of 2,240 pounds each. All said material to be of such detailed dimensions, weights and shapes as may be required in the construction of the vessel, and to be delivered at such place or places in the Navy Yard, Portsmouth, Virginia, as may be designated by the Commandant of said Yard. Deliveries to commence within thirty (30) days from the date of contract, and to be completed within six (6) months from such date: the material to be delivered promptly, in accordance with a detailed schedule prepared by the Assistant Naval Constructor at said Navy Yard, and in the order required to carry on the work to the best interests of the Government. All material to be of domestic manufacture, and to be accepted only after passing such tests as may be prescribed therefor by the Secretary of the Navy. Proposals must be in accordance with forms which will be furnished on application to the Bureau of Construction and Repair, and may be for one or more of the classes designated, but no bid for a portion of any class will be considered. Each proposal must be accompanied by satisfactory evidence that the bidder is able to furnish and deliver the material for which he bids. Each proposal must be accompanied by a certified check, payable to the order of the Secretary of the Navy, for an amount equal to five per cent. of the bid. The check received from the successful bidder will be returned to him on his entering into a formal contract for the due performance of the work, and giving bond for the same with satisfactory surety, in a penal sum equal to twenty-five per cent. of the amount of his bid; but in case he shall fail to enter into such contract and to give such bond within twenty days after notice of the acceptance of his proposal, the check accompanying such proposal shall become the property of the United States. All checks accompanying proposals which are not accepted will be returned immediately after the award shall have been made. Information relative to the dimensions and shapes of material, and all other information essential to bidders, will be furnished on personal application to the Bureau of Construction and Repair, Navy Department. Proposals must be made in duplicate, and enclosed in envelopes marked "Proposals for Steel for the Armored Battle-ship 'Texas,'" and addressed to the Secretary of the Navy, Navy Department Washington, D. C. Each class of materials will be bid for separately, and the Secretary of the Navy reserves the right to reject any or all bids, or the bids on any class or classes, as, in his judgment, the interests of the Government may require.

D. B. HARMONY, *Acting Secretary of the Navy.*

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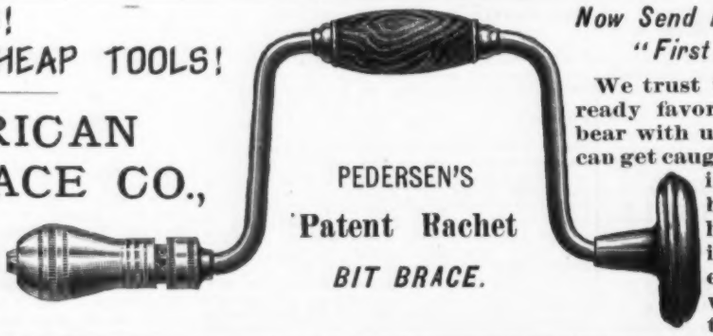

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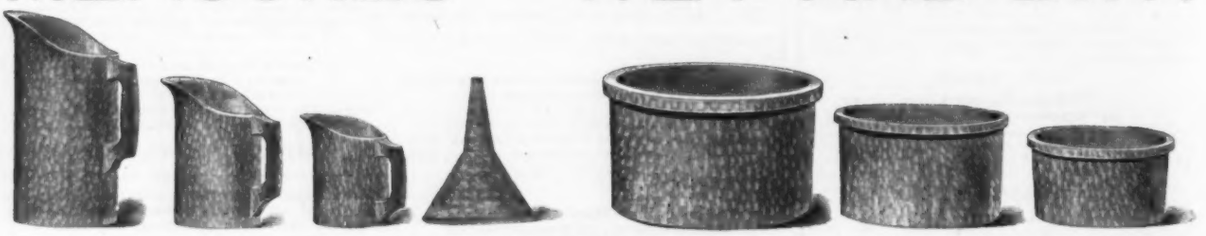

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60	26 x 28 to 24 x 36...	17.75	16.25	14 75	...
70	26 x 36 to 26 x 41...	19.00	17.50	15.25	....
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90	36 x 56 to 34 x 56...	23 0s	21.25	19.00	....
94	34 x 58 to 34 x 60...	24.00	22.75	21.00	....
100	36 x 60 o 40 x 60...	26.50	24.50	23.00	.

United Inches.	Sizes.	Double. AA	A	B	C
25	6 x 8 to 10 x 15...	$13.00	$12.50	11 00	$10.00
40	11 x 14 to 16 x 24...	16.00	15 00	13.50	12.00
50	18 x 22 to 20 x 30...	20.50	19.50	18 00	....
54	15 x 36 to 24 x 30...	22.00	20.75	18.75	...
60	26 x 28 to 24 x 36...	25.00	23.00	21.00	....
70	26 x 36 to 26 x 44...	26.00	25.00	22.50	...
80	26 x 46 to 30 x 50...	28.00	26.50	23.75	....
84	30 x 52 to 30 x 54...	30.00	28.00	25.25	...
90	30 x 56 to 34 x 56...	31 00	30.00	27.00	....
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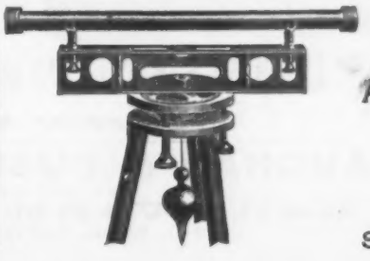

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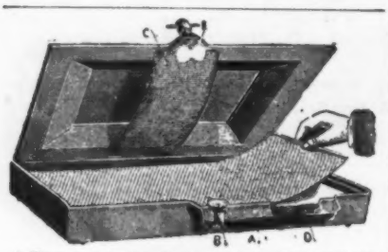

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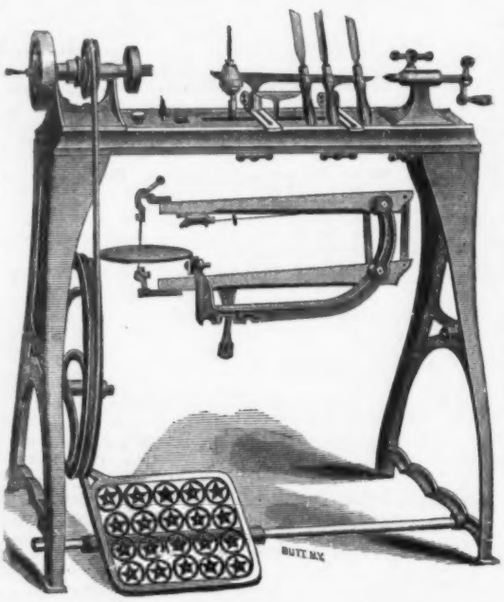

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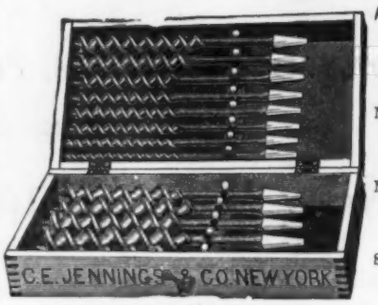

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This illustration represents our Auger Bits put up in Fancy Wood Boxes with rack to hold one Auger Bit of each size

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Sold by all first-class Hardware dealers. If you fail to obtain them we will forward on receipt of price.

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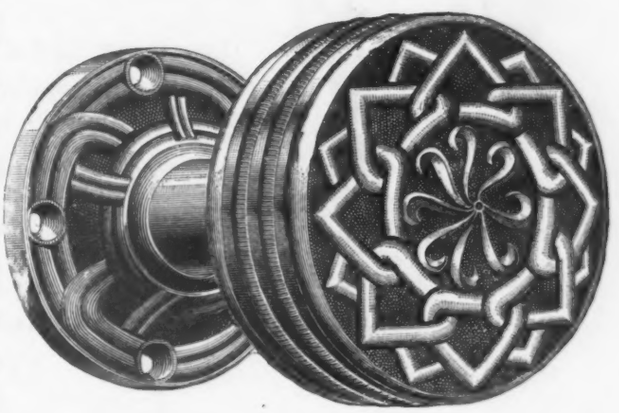

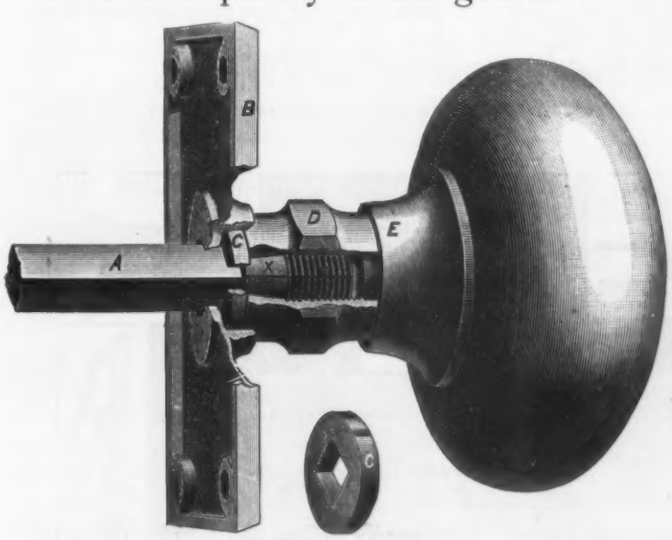

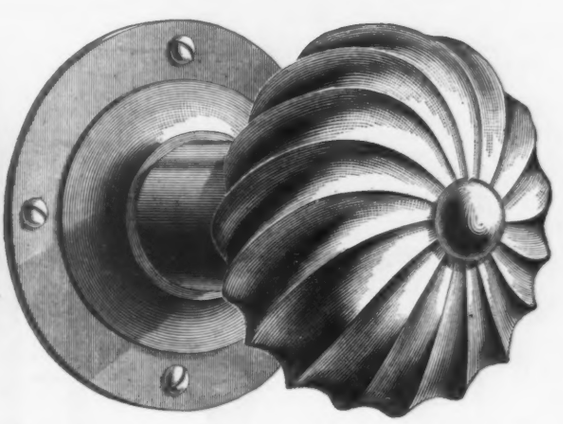

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A LARGE CAPACITY, AND EASY WORKING PUMP FOR

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Fig. 120.

Fig. 70.

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Capacity from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced.

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Fig. 209.

Fig. 381.

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FIG. 114.

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FIG. 114 REPRESENTS OUR

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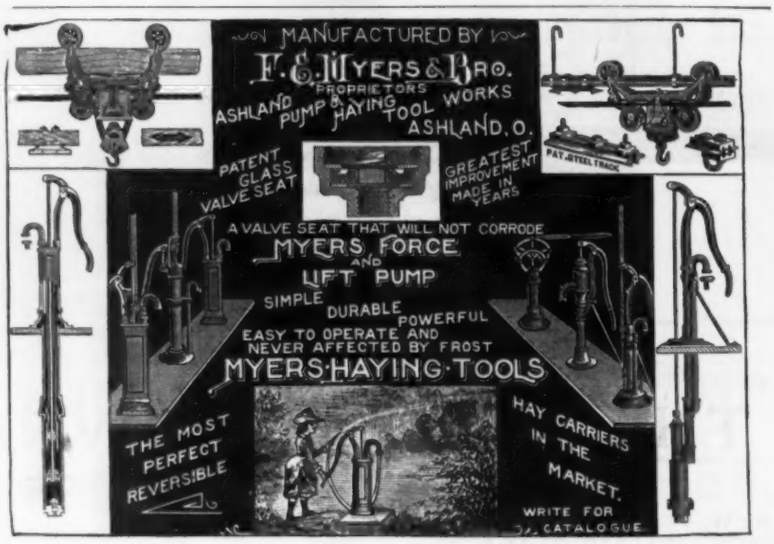

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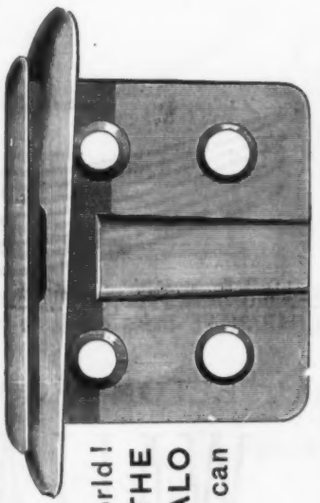

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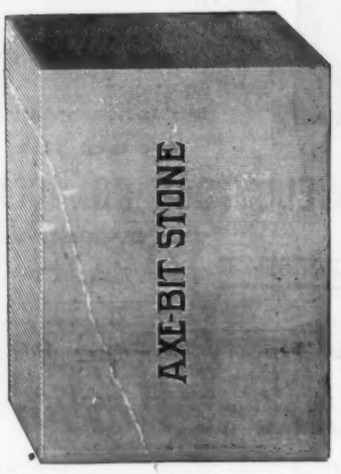

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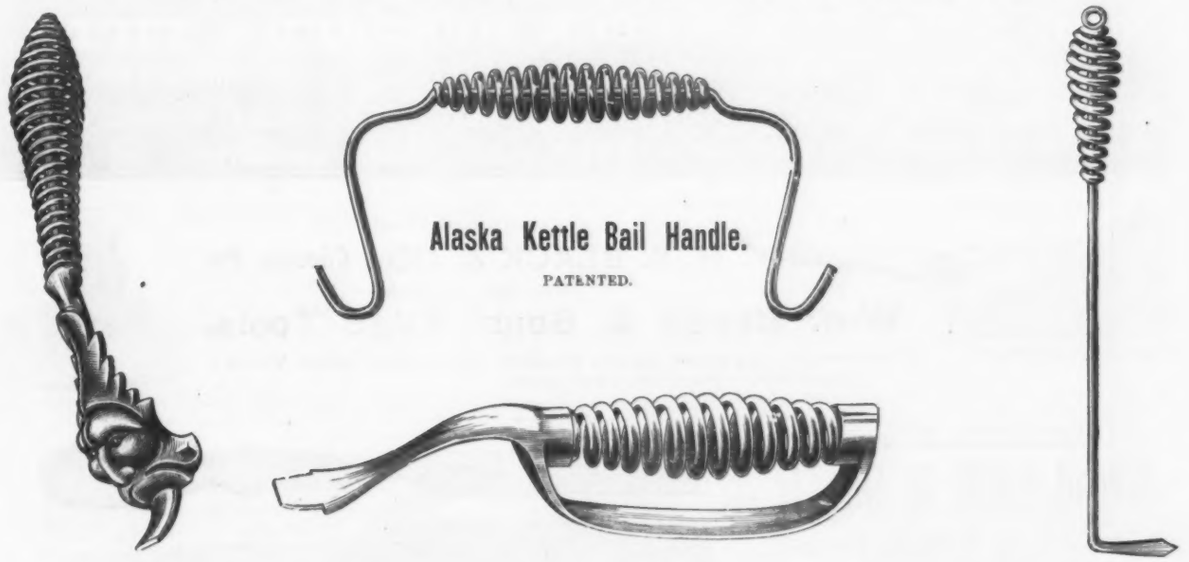

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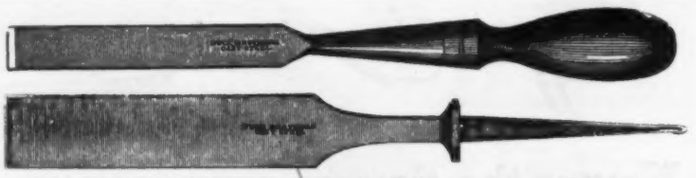

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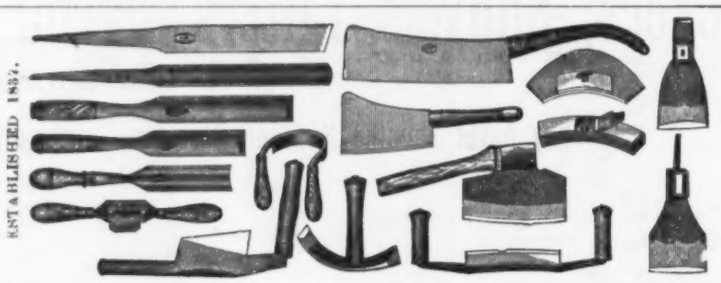

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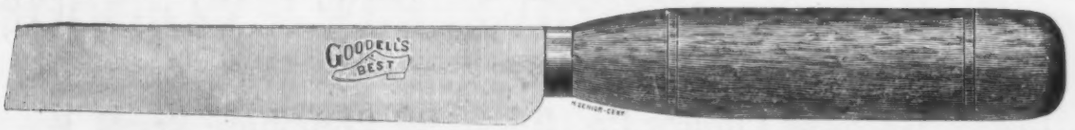

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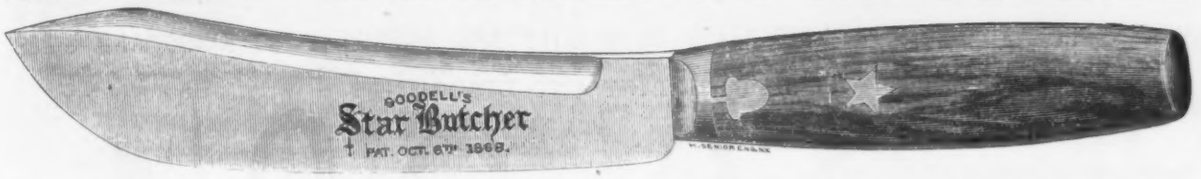

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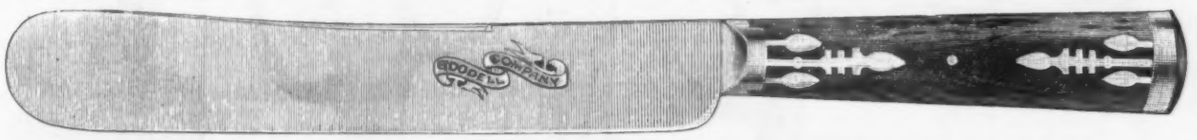

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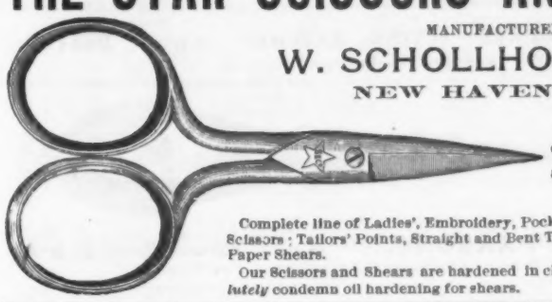

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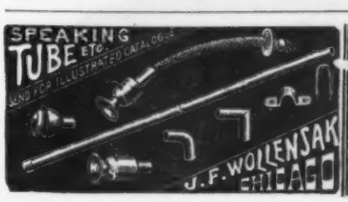

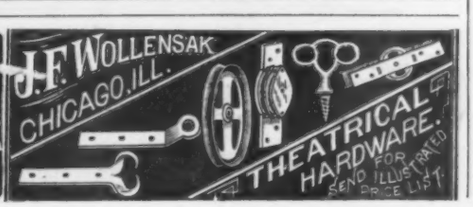

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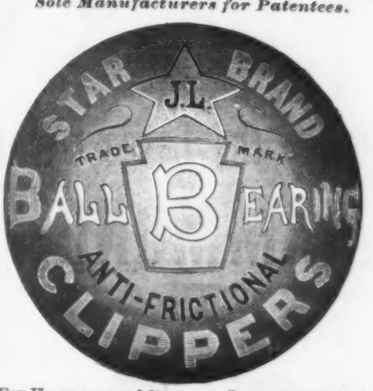

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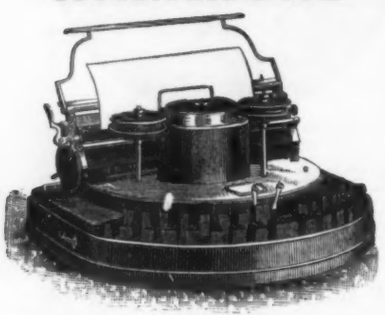

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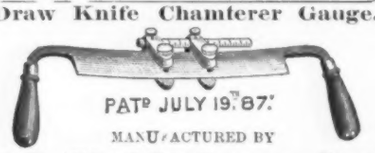

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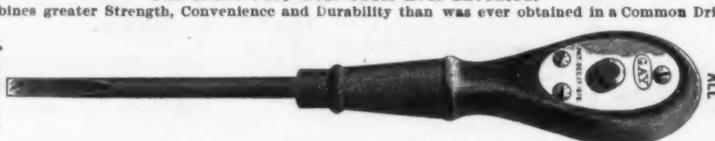

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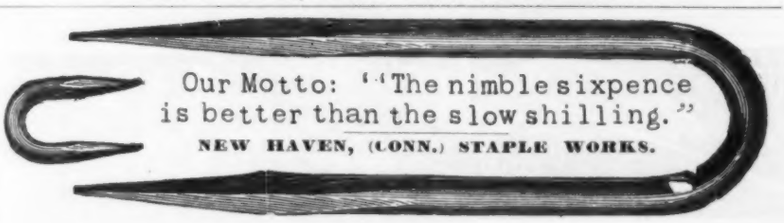

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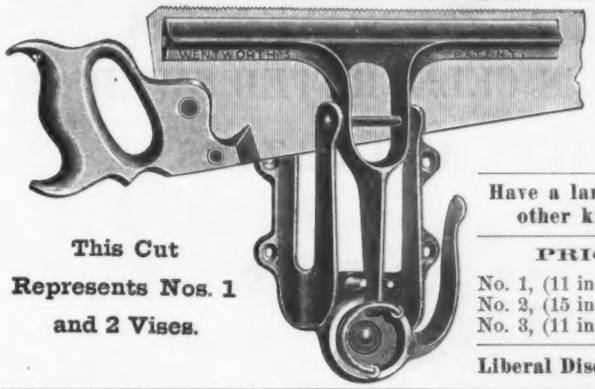

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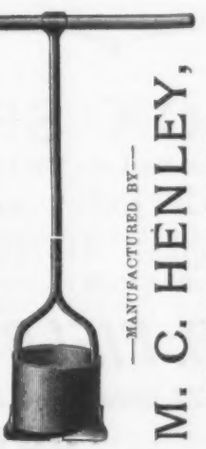

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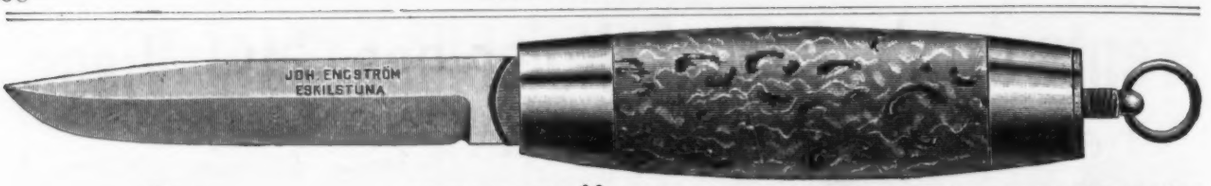

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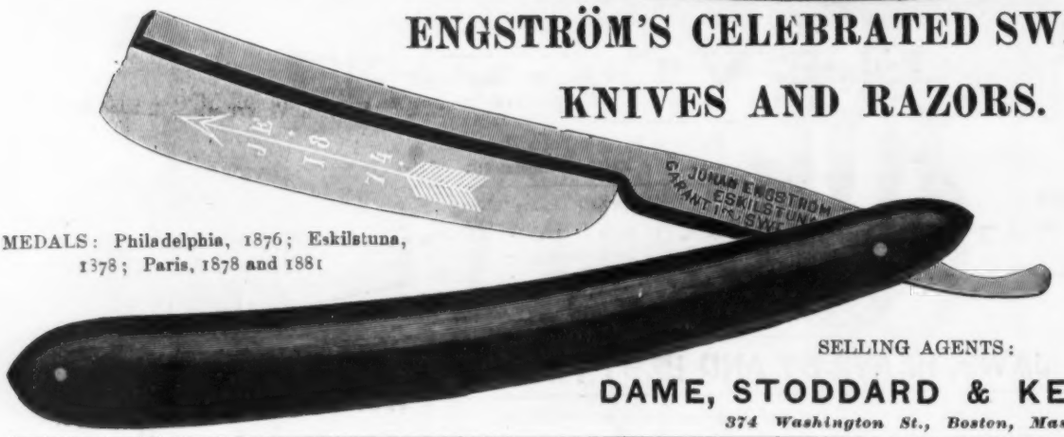

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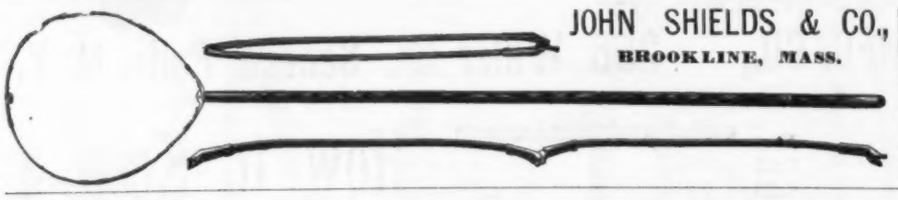

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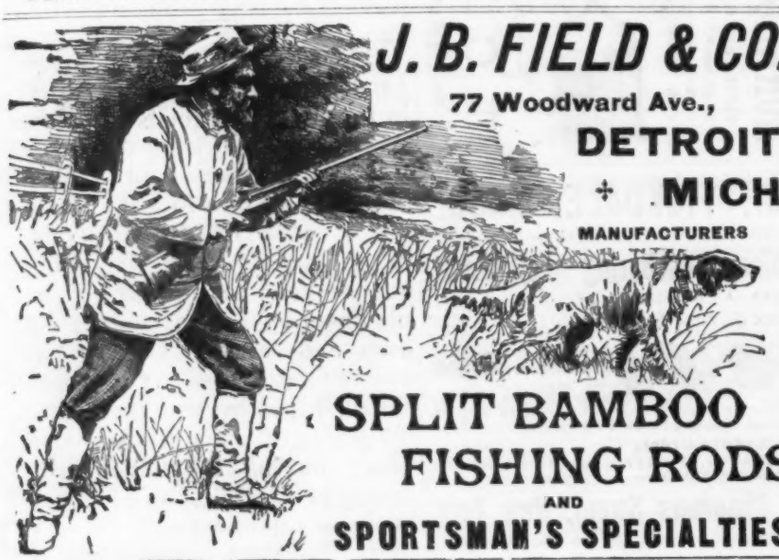

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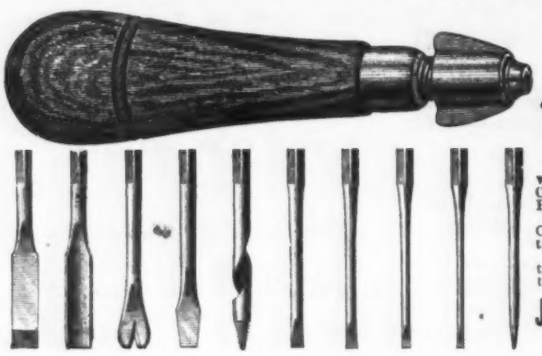

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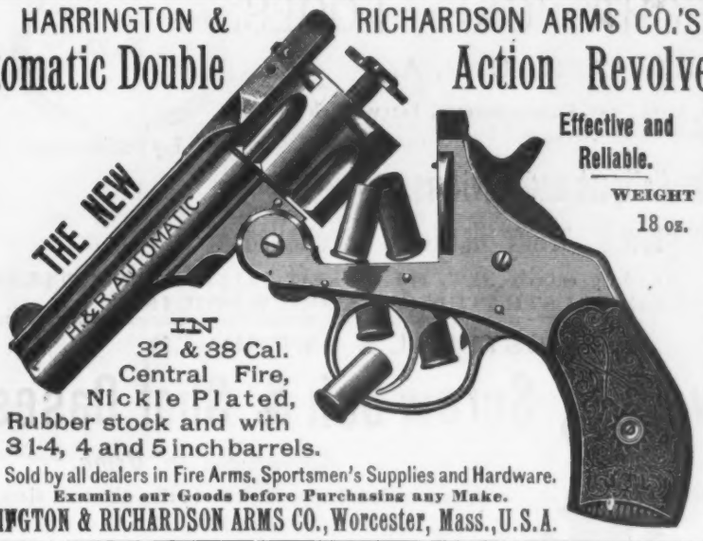

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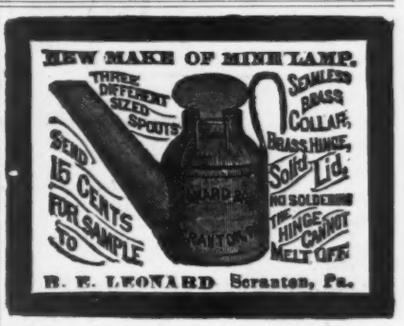

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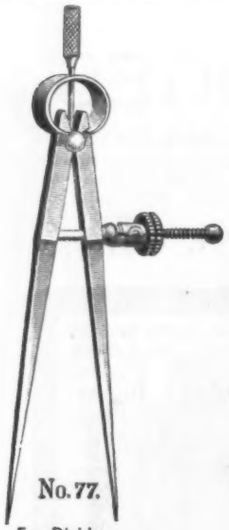

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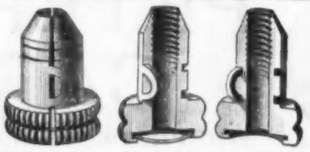

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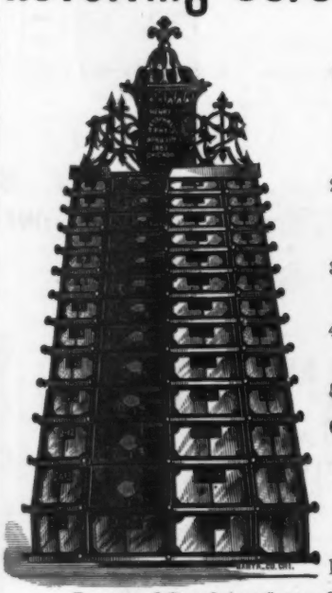

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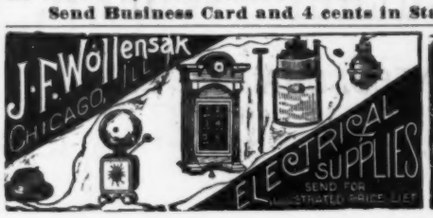

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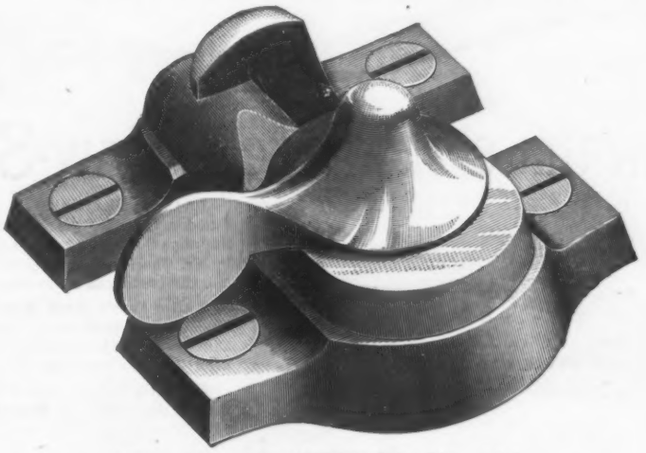

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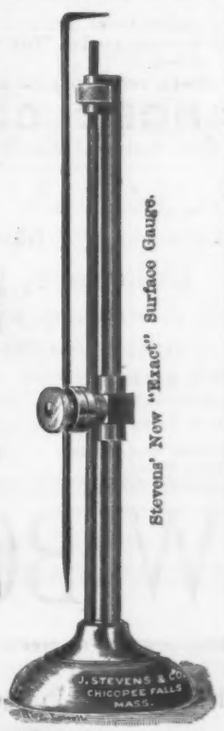

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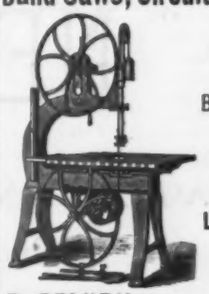

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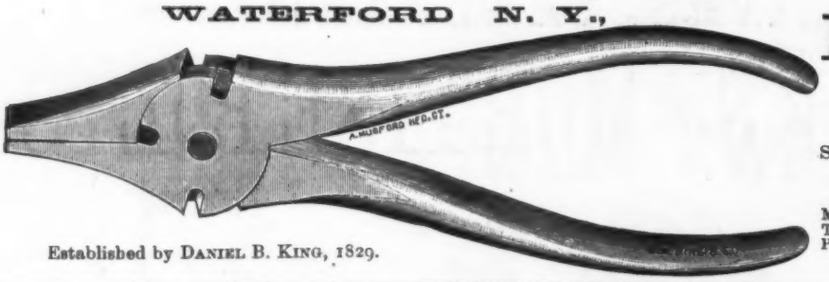

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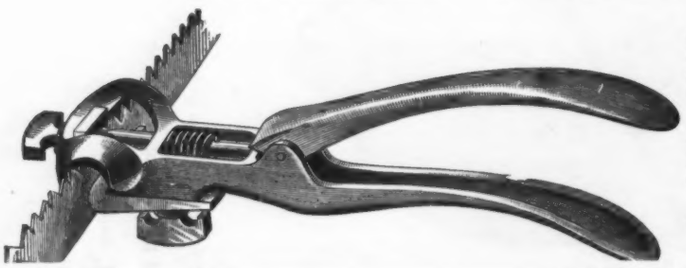

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THIRD.—The cupping in the Nose is used for pulling tacks, Brads or nails, and can also be used in place of Hill's Hog Ringer.

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CHEAP. ——MANUFACTURED BY—— **DURABLE.**

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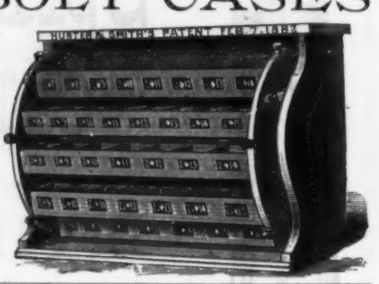

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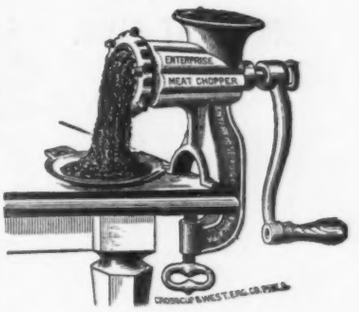

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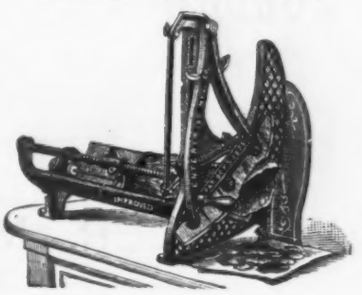

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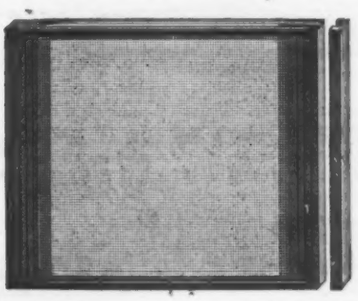
PAT'D  STAR

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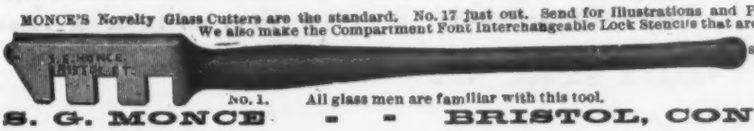

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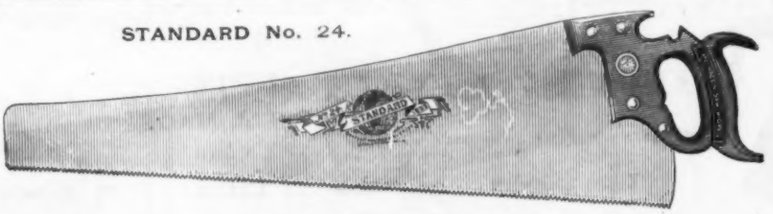

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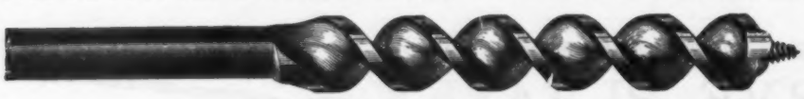

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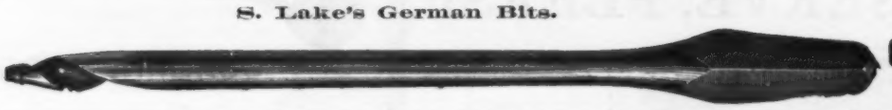

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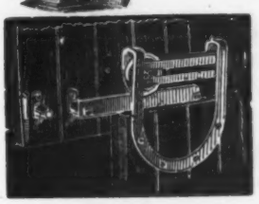

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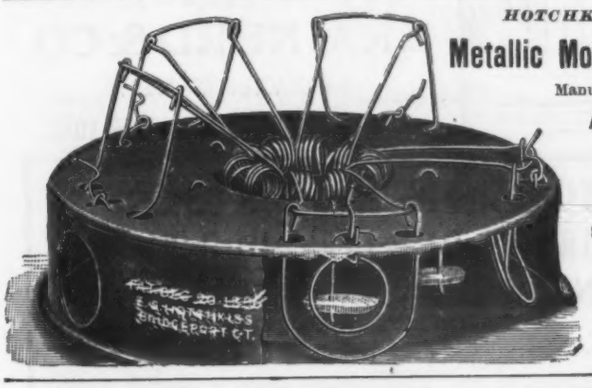

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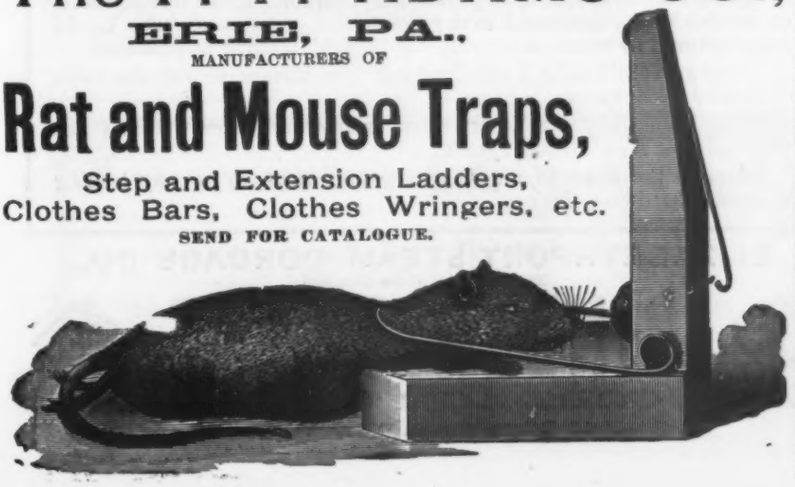

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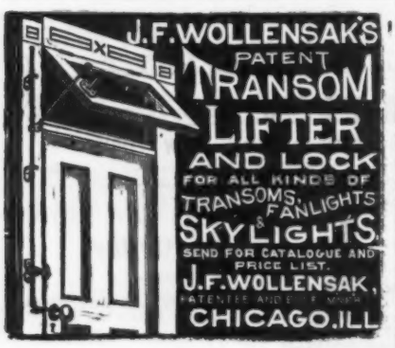

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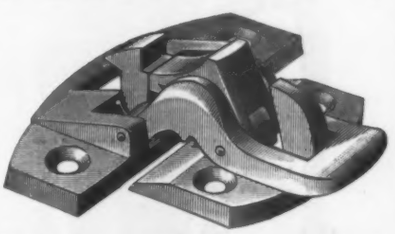

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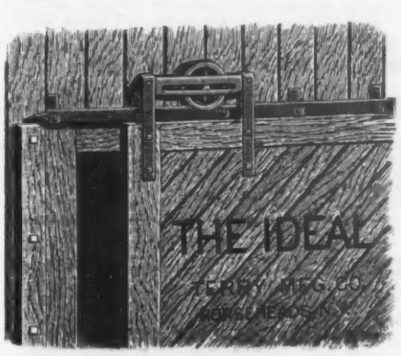

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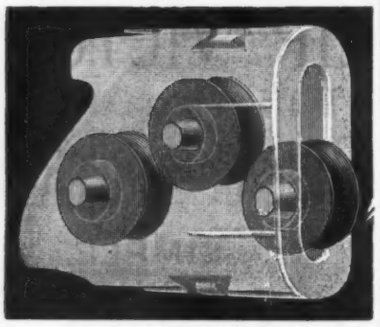

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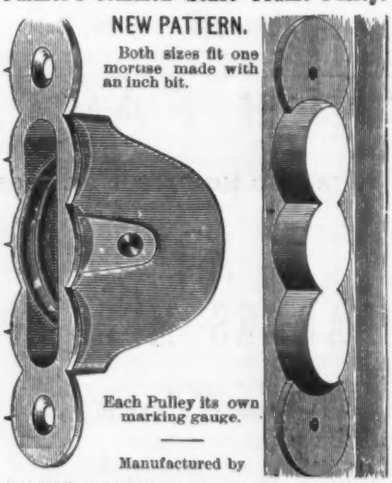

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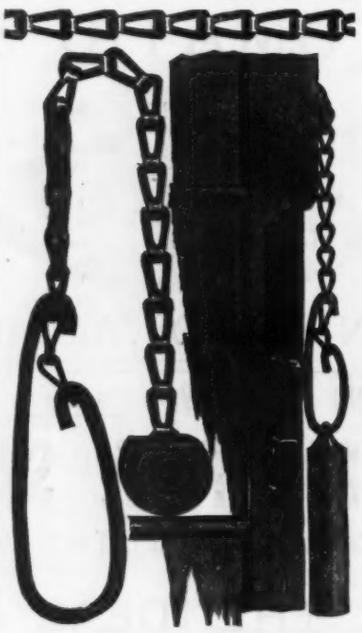

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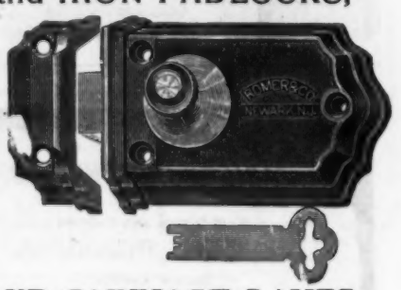

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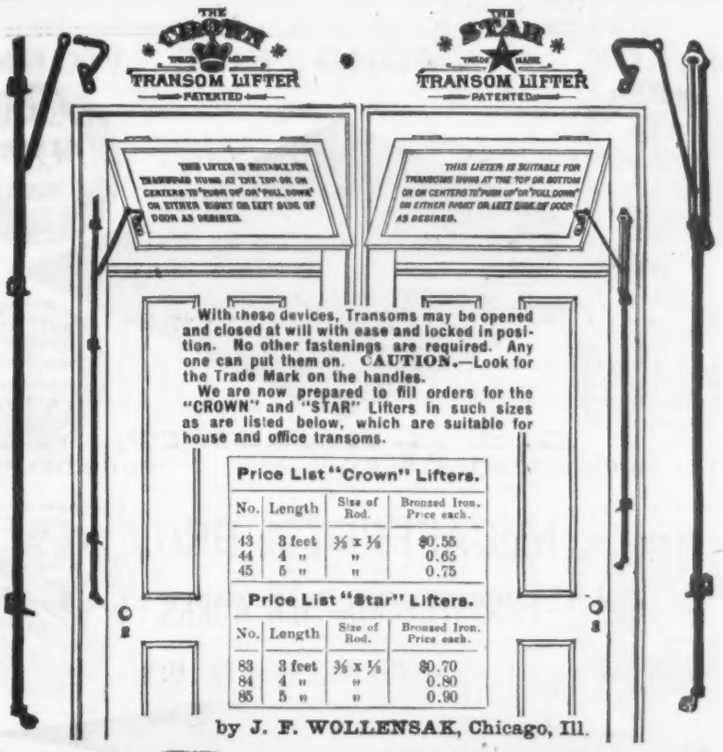

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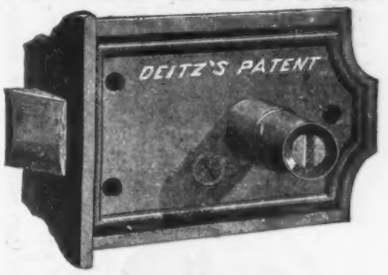
44	4 "	"	0.65
45	5 "	"	0.75

Price List "Star" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
83	3 feet	⅜ x ⅜	$0.70
84	4 "	"	0.80
85	5 "	"	0.90

by J. F. WOLLENSAK, Chicago, Ill.

A. E. DEITZ.



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Factory, **BROOKLYN, E. D., N. Y.**

Reihers' Improved Transom Lifters

Best in the market. Send for Catalogue.

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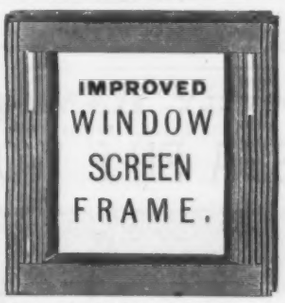

The Side Sticks are ⅞ x 2 inches. End ⅞ x 1 inch. Stained Imitation Black Walnut.

Each Set is composed of Frame Slide and Strips to tack over wire.

These Frames are beaded and are slit 6 inches on one end to facilitate fitting to any window, by cutting if necessary.

These Sides are grooved the entire length, doing away with necessity of cutting grooves in end of top and bottom sticks as in other makes.

Corner and Sticks FOR WINDOWS AND DOORS.

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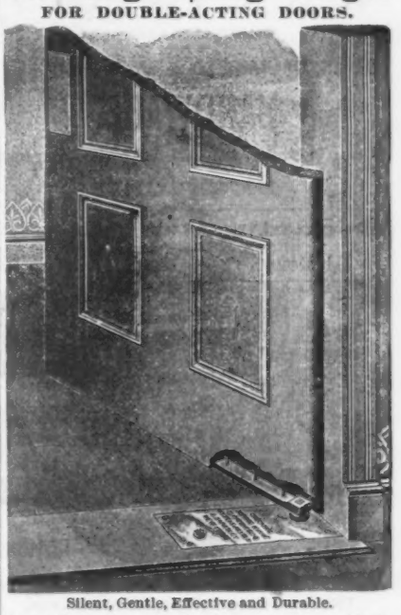
FOR DOUBLE-ACTING DOORS.



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8 inch, per doz	$4.20	14 inch, per doz	$6.00
10 inch, "	4.80	16 inch, "	7.50
12 inch, "	5.40	18 inch, "	9.00

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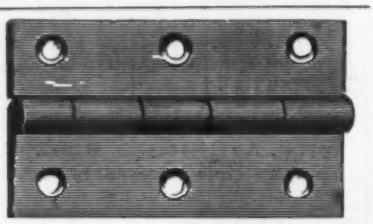

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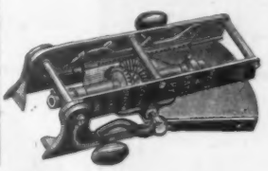

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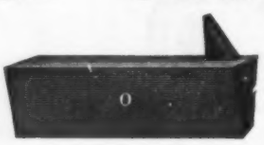

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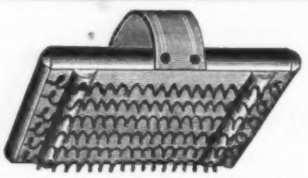

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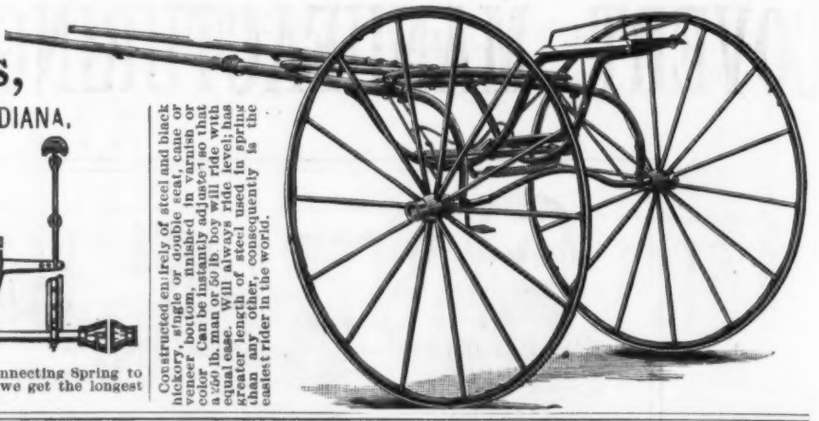

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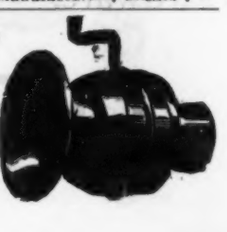

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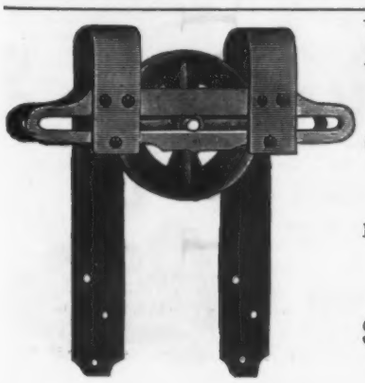

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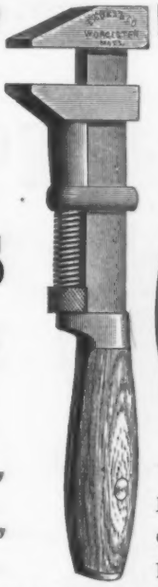

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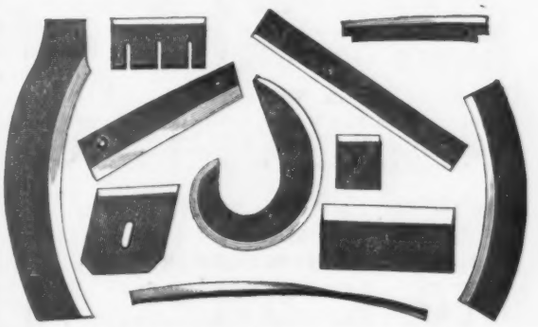

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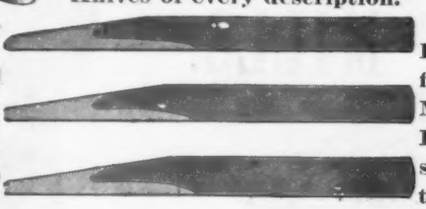
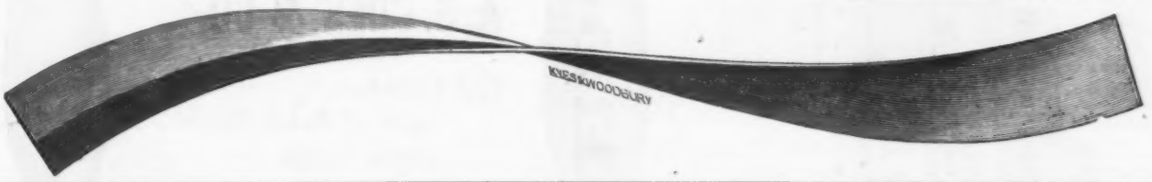


End view of Plated Stock for Dies, Lawn Mower Knives, Blades, &c., showing how the Steel is laid



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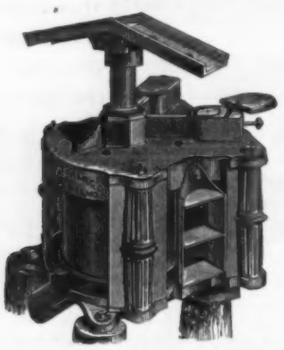

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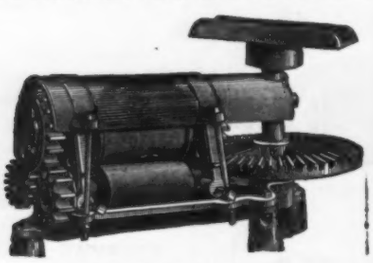

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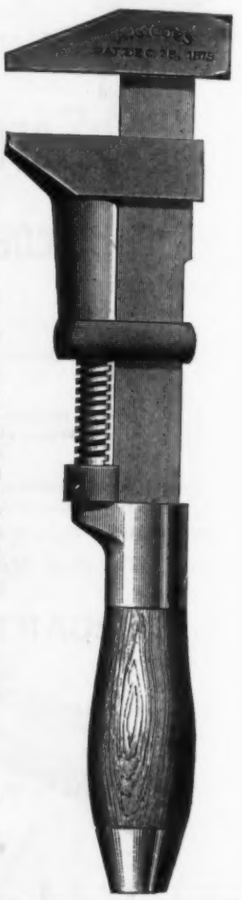

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The Ferrule is firmly secured in place by a nut screwed on the bar.

Particular attention is called to the way in which the handle is made and fastened to the shank.

This Handle is made better and stronger than heretofore by using our new Cup Tip at the end which encloses the wood and keeps it from splitting. This is the only wrench which has the wood handle firmly secured and held together at each end, and it will stand more rough usage and last longer than any now made. It is not affected heat, cold or moisture.

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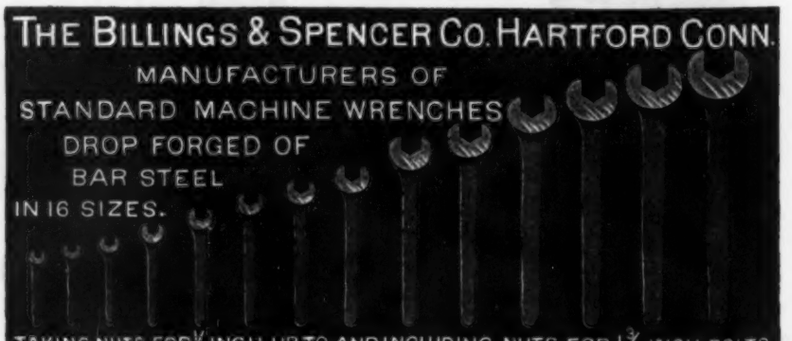

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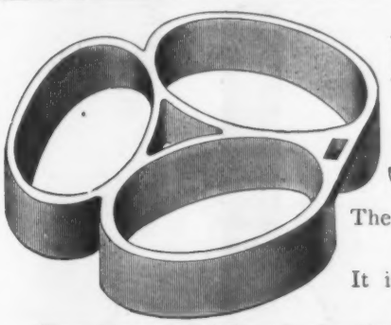

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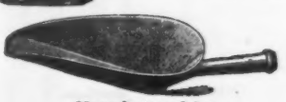

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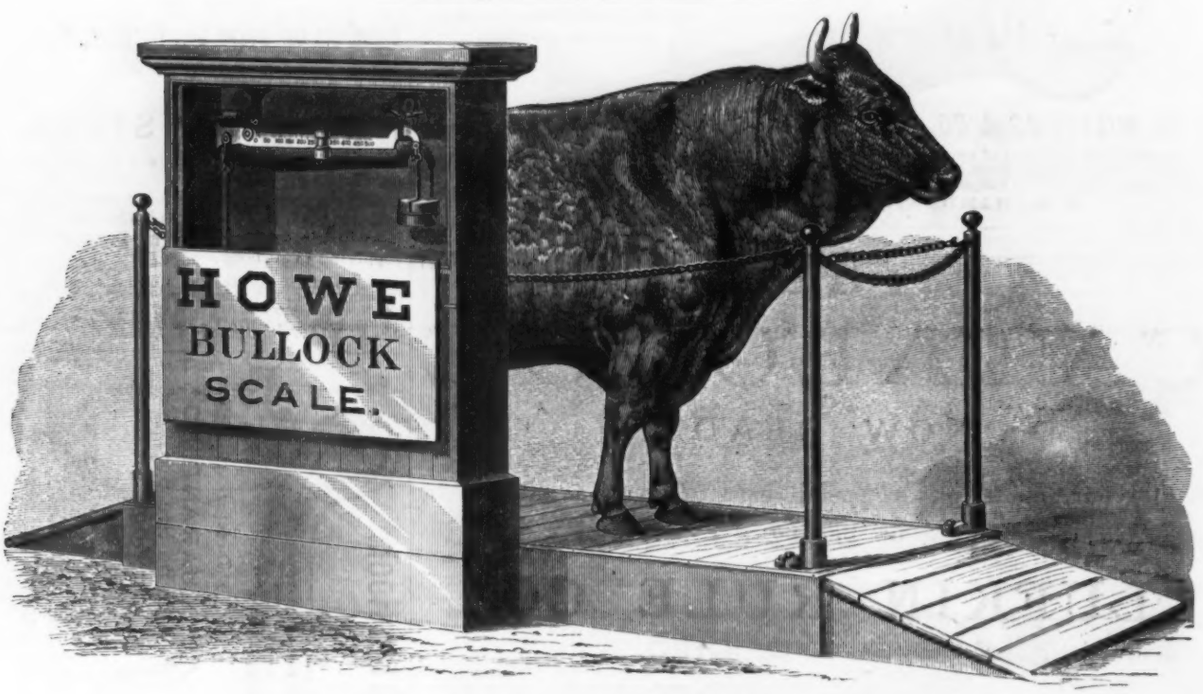

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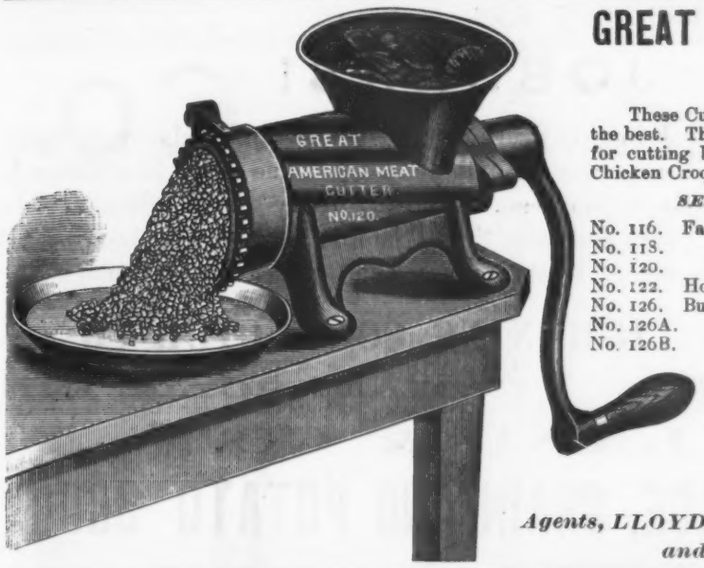

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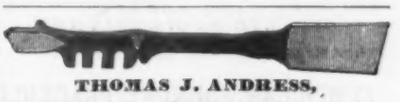

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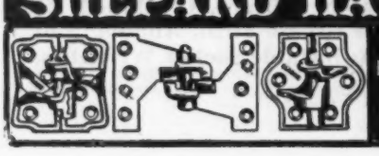

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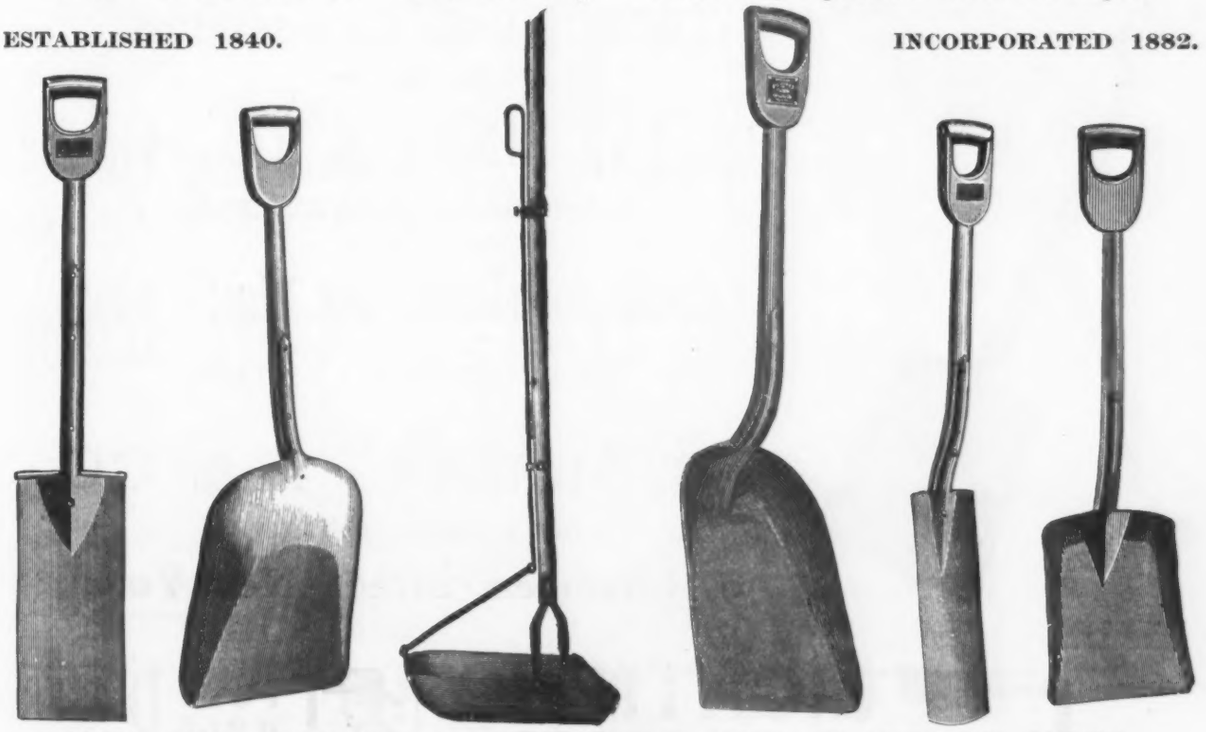

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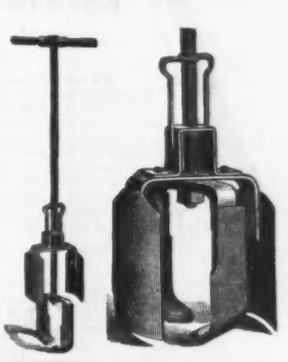

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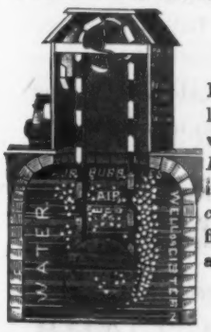

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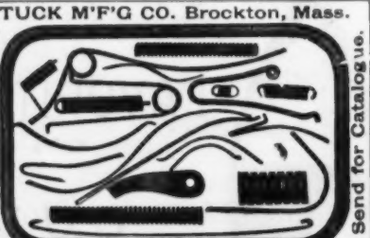

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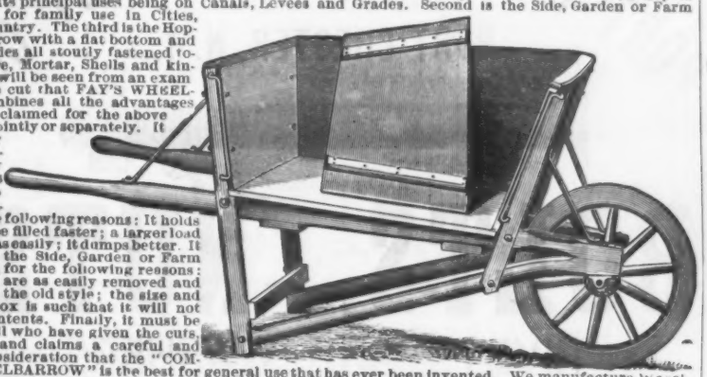

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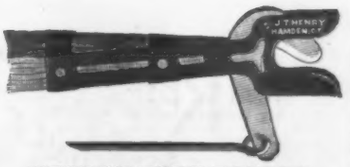

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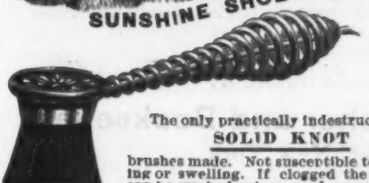

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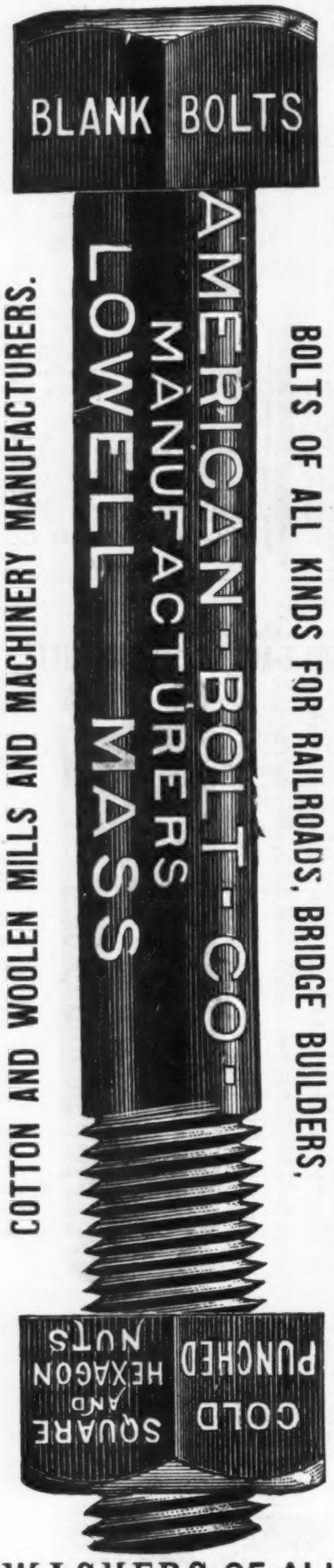

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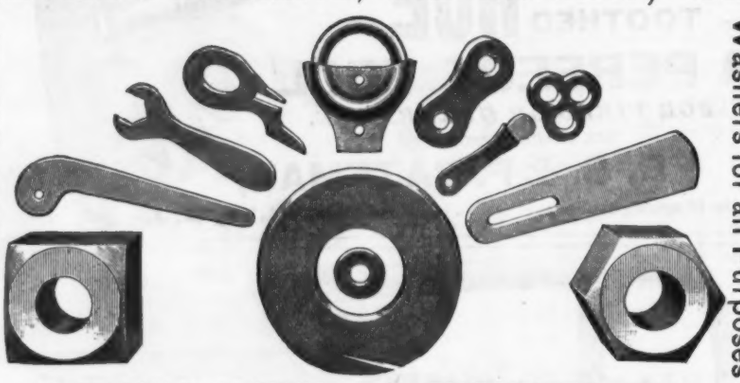

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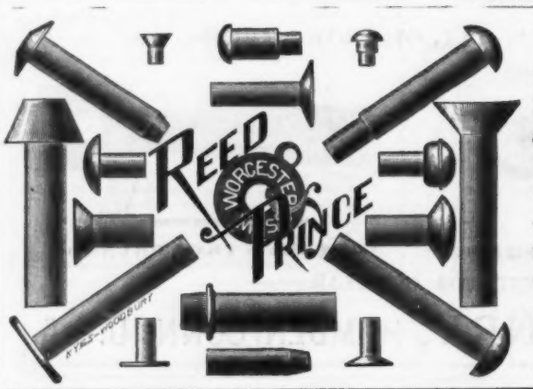

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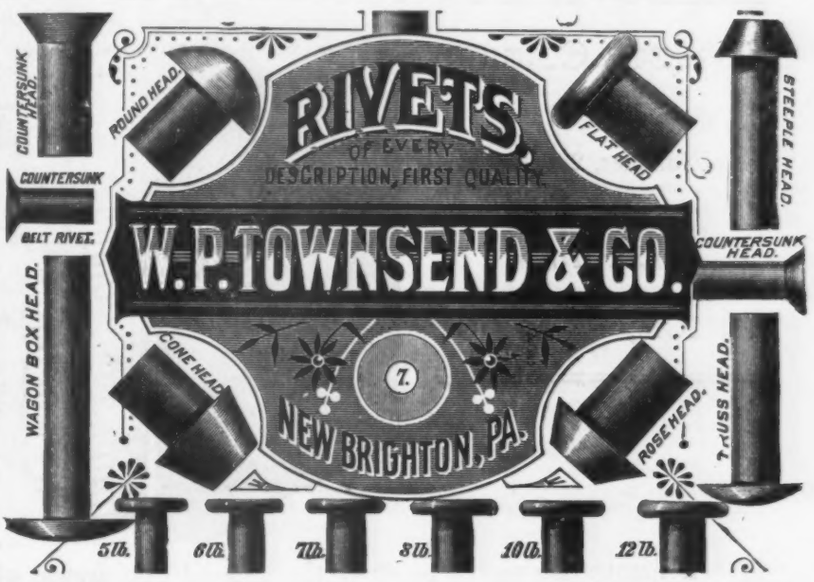

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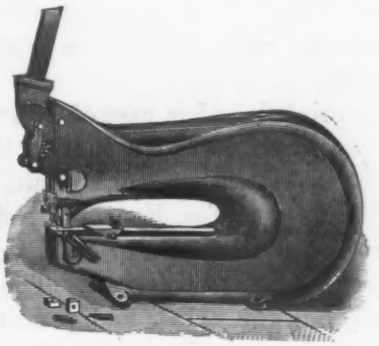

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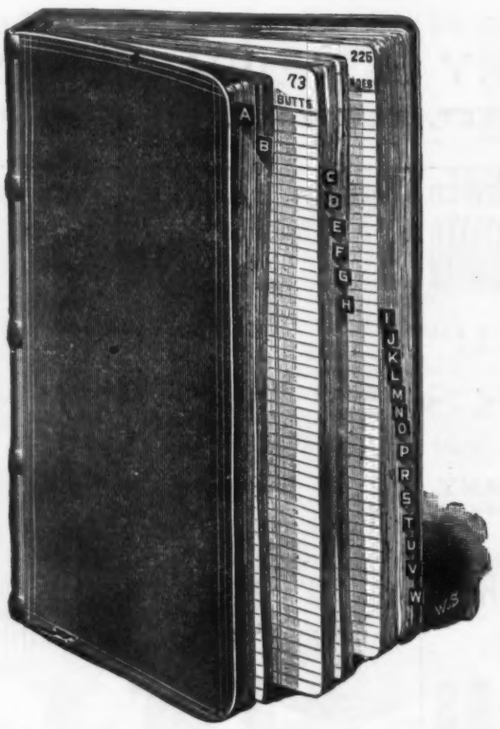

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Universal Radial Drill Co., Cinn.

Drills, Upright.
Currier & Snyder Worcester, Mass.
Prentice Bros., Worcester, Mass.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Billings & Spencer Co., Hartford, Ct.
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Philadelphia Drop Forge Co, Phila.
Scranton Forging Co., Scranton, Pa.
Williams, J. H. & Co., Brooklyn, N. Y.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Beecher & Peck, New Haven, Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Edward Storm Spring Co. Poughkeepsie, N. Y.

Edge Tool Makers.
Black, H. B & Co., Chester, Pa.

Edge Tools, *Makers of.*
White, L. & I. J., Buffalo, N. Y.

Egg Ponchers.
Paine, Diehl & Co., Philadelphia.
Shepard, Sidney & Co., Buffalo, N. Y.

Electrical Supplies.
Wollensak, J. F., Chicago, Ill.

Bolt Cutters.
Howard Iron Works, Buffalo, N. Y.
Wells Bros. Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Books.
Lamberson, B., Portland, Or.
Leigh, E. B., St. Louis, Mo.

Electric Bells.
Ostrander, W. R. & Co., New York.

Electric Lighting.
The Brush Electric Co., Cleveland, O.
Waterhouse Electric & Mfg. Co. Hartford, Conn.

Electric Dynamo Machines.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct

Elevators, *Makers of.*
Morse, Williams & Co., Phila., Pa.
Stokes & Parrish Machine Co., Philadelphia, Pa.

Emery Paper, Cloth, &c.
Walpole Emery Mills, S. Walpole, Mass

Emery Wheels.
New York Belting and Packing Co. 15 Park Row, N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Springfield Glue and Emery Wheel Co., Springfield, Mass.
Sterling Emery Wheel Co., 22 Warren Street, N. Y.
The Tanite Co., Stroudburg, Pa.
Waltham Emery Wheel Co. Waltham, Mass.

Engineering Implements & Supplies.
Queen & Co., Philadelphia, Pa.

Engineering Specialties
Curtis Regulator Co., Boston, Mass.

Engineers.
Gordon Strobel & Laureau, Phila.

Engineers and Contractors.
Laushlin, A. & Co., Cleveland, O.
Lean & Blair, Pittsburgh, Pa.
McClure & Shuler, Pittsburgh, Pa.
McKenna, Ryan & Sons, Pittsburgh.
Roberts, Frank C., Philadelphia, Pa.
Robinson, Wm. H., Philada, Pa.
M. V. Smith, Pittsburgh, Pa.
Stein & Schwarz, Philadelphia, Pa.
Swindell Construction Co. Pittsburgh, Pa.
Waite & Van Harlingen, Phila. Pa.

Engines, Gas.
Clerk Gas Engine Co., Phila., Pa.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Climax Mfg. Co., Corry, Pa.
Farquhar, A. B. & Son, York, Pa.
Harrisburg Car Mfg. Co., Harrisburg Pa.
Leffel Jas. & Co., Springfield, O.
Newell Universal Mill Co., 10 Barclay N. Y.
Payne B. W. & Sons, 49 Dey, N. Y
Russell & Co., Massillon, Ohio
Norwalk Iron Works Co., S. Norwalk
Todd Wm. & Co., Youngstown, O.
Wetherill Robt. & Co., Chester, Pa.

Engravers and Printers.
Conant, J. S. & Co., Boston, Mass.
Gies & Co., Buffalo, N. Y.
Kyes & Woodbury, Worcester, Mass

Evaporators.
Oyler, Geo. K., St. Louis, Mo.

Exhaust Fans.
Clark, Geo. P., Windsor Locks, Conn.

Exhaust Pipe Condensing Head.
Aller, Amos, 109 Liberty, N. Y

Expansion Bolts.
Boone, W. C. & Son, Brooklyn, N. Y.

Faucets, Self-Measuring.
Enterprise Mfg. Co., Philada., Pa.

Faucets, *Makers of.*
John Sommer's Son, Newark, N. J.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn

Fences, Wrought Iron.
Champion Iron Fence Co., Kenton, O.

Files, *Importers of.*
Montgomery & Co., 105 Fulton, N. Y.
Moss, F. W. 80 John, N. Y.

Files and Rasps, *Manufacturers of.*
Barnett, G. & H., 41 & 43 Richmond, Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey & Bro., Philadelphia.
Paul Chas. B., Williamsburg, N. Y.

Fire Brick, *Makers of.*
Birmingham Fire Brick Works, Birmingham, Ala.
Borgner & O'Brien, Philadelphia, Pa
Gardner James, Cumberland, Md.
Hawa, A. J. & Sons, Johnstown, Pa.
Kreischer B. & Sons, foot E. Houston, N. Y.
Maurer H. & Son, 420 E. 23d, N. Y.
Newton & Co., Albany, N. Y.
Ostrander James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine M. D. & Bro., Woodbridge.

Fire Sets, Pokers, &c.
Troy Nickel Works, Troy, N. Y.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Field, J. B. & Co., Detroit, Mich
Shields, John & Co., Brookline, Mass.

Flint Garnet Paper.
Upton Geo., Boston, Mass.

Flour Sifters.
Fred. J. Meyers Mfg. Co., Covin Ky.

(See Alphabetical Index, Page 104.)

Foreign Iron Merchants.
Jno G. Rollins, London England.

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Brown & Patterson, Brooklyn, N. Y.
Bullock, T. H., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co. Lancaster, Pa.
Sturtevant B. F., Boston Mass.

Forgings, Iron and Steel.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Miller Forge Co., Pittsburgh, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg Co., Cincinnati, O.

Foundry Riddles.
Estey W S., 71 Fulton, N. Y.

Foundry Supplies.
Detroit Foundry Equipment Co., Detroit Mich.
McLanahan & Stone, Hollidaysburg, Pa
S. Obermayer, Foundry Supply Mfg Co., Cincinnati, O.
Paxson J. W. & Co., Philadelphia.

Friction Clutches.
Hill Clutch Works, Cleveland, O.
Moore & White Co., Philadelphia, Pa.

Friction Pulleys.
Sandy Hill Iron and Brass Works, Sandy Hill, N. Y.

Furnace Hoists.
Stokes & Parrish Machine Co., Phila.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila. Pa.

Gears.
Grant, Geo. B., Boston, Mass.

Gear Cutters.
Grant, Geo. B., Boston, Mass.
D. E. Whiton Mach. Co., New London Conn.

Glass Cutters.
Andress, Thos. J., Philadelphia, Pa.
Monce, S. G., Bristol Conn.

Glue.
Le Page Liquid Glue and Cement Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.
Upton, Geo., Boston, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Gunpowder. *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hammers, Steam.
Bradley & Co., Syracuse, N. Y.

Hand Force Pumps.
Union Mfg. Co., 103 Chambers, N. Y.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field Alfred & Co., N. Y.
Jacobus, W. H. & Co., N. Y.

Hardware Manufacture
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Vaughan & Bushnell Mfg. Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H., 115 Chambers, N. Y.

Hardware Shelf Boxes.
Green S. H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit Brace Co., Buffalo, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Greene, Tweed & Co., N. Y.
Paine, Diehl & Co., Philadelphia, Pa.
Rex A. C. & Co., Philadelphia, Pa
Saxton E. R., Buffalo, N. Y.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Carriers.
Myers F. E. & Bro., Ashland, O.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hinges.
Union Mfg. Co. 103 Chambers, N. Y.

Hoes.
Bateman, E. S. & F., Spring Mills, N. J.

Hog Ringers.
Chambers, Bering & Quinlan Co., Decatur.

Hoisting Machines.
Box Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty, N. Y.
Energy Mfg. Co., Philadelphia, Pa.
Harrington E., Son & Co., Phila.
McCoy & Sanders, 26 Warren, N. Y.
Morse, Williams & Co., Phila.
Sellers Wm. & Co., Phila. and N. Y.
Teal Hoist Co., Philadelphia.

Horse Nails. *Makers of.*
Essex Horse Nail Co., Essex, N. Y.
National Horse Nail Co. Vergennes.

Horse Shoes. *Makers of.*
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa.

Hydrants, &c.
McLean John, N. Y.

Hydraulic Jacks.
Dudgeon Richard, N. Y.
Watson & Stillman, '04 E. 43d, N.Y.

Ice Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.

Indurated Fibre Ware
Union Indurated Fibre Co., N. Y.

Injectors.
Aller, Amos, 109 Liberty, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron. *Manufacturers' Agents.*
Cox Justice, Jr., & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Hoffman J. W. & Co., Philadelphia.
Levis Henry & Co., Philadelphia.

Iron. *Manufacturers of.*
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Curtins & Co., Roland P. O., Center Co., Pa.
Mahoning Valley Iron Co., Youngstown, O.
Montour Iron & Steel Co., Danville.
Moorhead-McCleane Co., Pittsburgh, Pa.
Passaic Rolling Mill Co., Paterson.
Phoenix Iron Co., 410 Walnut, Phila.
Pottstown Iron Co, Pottstown, Pa.
Troy Steel and Iron Co., Troy, N. Y.
Whitney A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philp C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Etting Edward J., Philadelphia, Pa.
Walbaum W. H. & Co., Philadelphia, Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia.
Mohr J. J., 430 Walnut, Phila.
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila., Pa,
Hart, Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co., Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 109 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig, *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet. *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O.

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Miller Falls Co., 91 Reade, N. Y.
Pryibil P., 407 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Clippers.
Tuck Mfg. Co., Brockton, Mass.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co. Newburg N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Wast, Foos & Co., Springfield, O.

Lawn Sprinklers.
McGowan, John H. & Co., Cincinnati, O.

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. F., Athol, Mass.

Lightning Rods.
Munson Lightning Conductor Co., Indianapolis, Ind.

Locks and Knobs. *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co., Bridgeport.
Quackenbush, Abram, New York.
Romer & Co., Newark, N. J.
Yale & Towne Mfg. Co., Stamford

Machinery.
Adt John & Son, New Haven, Conn.
Barnes W. F. & John, Rockford, Ill
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Brettell & Wilson, Rochester, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Bullard, E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray's Ferry F'd'y & Boiler Co., Phila. Pa.
Hendey Machine Co. Torrington, Ct
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge, Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Nicholson & Waterman, Providence, R. I.
Pedrick & Ayer, Philadelphia, Pa.
Pryibil P., 407 W. 40th, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers Wm. & Co., Phila.
Snell, Henry I., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. F'd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co. Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Comin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. C. Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Match Safes.
Dangerfield, F. S., Auburn, N. Y.

Mallets.
N. Y. Mallet and Handle Works, N.Y.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Meat Choppers.
Enterprise Mfg. Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N.Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard, P. F., Scranton, Pa.
Leonard, P. F., Scranton, Pa.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co. Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Old Dominion Iron & Nail Co., Richmond Va.
Oxford Iron Co., 81 Washington N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y.

Norway Shapes. *Rollers of.*
Naylor & Co., 99, John, N. Y.
Rowland William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester
Wilson J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn

Oil Cups.
Lawrence, Chas. D., 28 Cliff St., N. Y.

Oil Stones.
A. F. Pike Mfg. Co., Pike Station, N. H.
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
Alford & Berkele Co., 77 Chambers St., N. Y.
American Oil Stove Co., Gardner, Mass.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-Spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co., N.Y.
Smith, James & Co., 137 Market St. Philadelphia, Pa.

Padlocks.
Fraim, E. T., Lancaster, Pa.

Pails.
Brower, John, New York.

Paint.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Stocking E. B., Washington, D. C.

Perforated Metal.
Throop Perforating Co., Buffalo, N. Y
Harrington & King Perforating Co.,

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Picture Cord.
Gilmore, E. W & Co., No. Easton, Mass

Pig Iron.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, *Makers of.*
Donaldson Iron Co, Emaus, Pa.
Fox John, 160 Broadway, N. Y.
Morris, Tasker & Co., 234 South Third Street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co, St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N. Y

Post Hole Diggers.
Lagonda Mfg. Co., Springfield, O.
Motherwell Iron and Steel Co., Logan, O.

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass. "Silver Finish."

Powder.
King's Great Western Powder Co Cincinnati, Ohio.

Power Hammers.
Belden R. A. & Co., Danbury, Conn.
Bradley & Co., Syracuse, N. Y
Dieneli & Kisenhardt, Philadelphia
Duncan, W. P. & Co., Bellafonte, Pa.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown, Conn.

Presses, Power. *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Gould's Mfg. Co, New York.
Hooker-Colville Steam Pump Co., St Louis, Mo.
Keystone Engine and Machine Wks., Phila., Pa.
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Easthampton, Mass.

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Pumps, Force.
Myers P. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y.

Pumps. *Makers of.*
Bucket, Pump and Water Purifier.
Columbiana Pump & Machine Co.
Douglas W. & B., Middletown, Conn.
Goulds Mfg. Co., 60 Barclay, N. Y.
Silver & Deming Mfg.Co., Salem,O.
Union Mfg. Co., 103 Chambers, N. Y.

Punches.
Fulton Iron & Eng. Wks. Detroit, Mich.

Punching and Shearing Presses.
Long & Allstatter Co., Hamilton, O.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown, Pa.
Joliet Steel Co. 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y.
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. B. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Cowles Mfg. Co., Bridgeport, Ct.

Razors.
J. R. Torrey Razor Co., Worcester Mass.

Razor Strops.
Tower & Lamont, Rochester, N. Y.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia,

Refrigerator Trimmings.
Brainard & Co., 97 Chambers St., N. Y.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Diosway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rock Drills.
Clayton Air Compressor Works, Brooklyn, N. Y., and Dey, N. Y.

Rolling Mill Machinery.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co., Pittsburgh, Pa.
Seaman, Sleeth & Black, Pittsburgh.

Roofing.
Garry Iron Roofing Co., Cleveland, O.

Rules, *Manufacturers of*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Balance.
R. B. Hugunin W. F. Mfg. Co., Hartford, Ct.

Sash Cords and Chains.
Morton Thos., 66 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Whitney, D. J., 47 Warren, N. Y.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Claflin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers St., New York.
Ives H. B. & Co., New Haven, Conn.
Ireland Mfg. Co., Cincinnati, O.
Sise, Gibson & Co., N. Y.

Sash Pulleys.
Empire Portable Forge Co., Cohoes, N. Y.
Palmer Hardware Mfg. Co, Troy, N. Y.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury, Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Truax, Chauncey S., 64 College Place, N. Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls, N. Y

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons, Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Riehlé Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Eitrich Hdw. Mfg. Co., Plantsville Conn.
Gay & Parsons, Augusta, Me.
Tower & Lyon, 95 Chambers, N. Y.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S., 205 Quarry, Philadelphia.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls, N. Y

Scythe Stones and Whetstones
A. F. Pike Mfg. Co., Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 27 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Schollhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Shoe Brushes.
Thompson Mfg. Co., Lansingb'h, N. Y.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.
Rowlands Sons, T., Philadelphia, Pa.
Sanford Fork and Tool Co., Terre Haute, Ind.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown, Conn.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen 105 Walker, N.Y.
Wollensak, J. F., Chicago, Ill.

Sporting Goods.
Field, J. S. & Co., Detroit, Mich.
Shields, Jno. & Co., Brookline, Mass.

Spelter.
Manning & Squier, 111 Liberty, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.

Spring Hinges.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
New Haven Staple Works, New Haven, Conn.

Strops.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon Richard, 24 Columbia, N. Y.
Duncan W. P. & Co., Bellefonte Pa.
Long & Allstatter Co., Hamilton, O.

Steam Heating.
Broomell & Sanas, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
McGowan John H. &Co., Cincinnati.
Norwalk Iron Wks.Co., So. Norwalk.

Steam Traps.
Aller Amos, 109 Liberty, N. Y.

Steel Figures and Alphabets.
Stutsman J. M., 181 William, N. Y.

Steel Importers.
Abbott Jere & Co., N.Y. & Boston.
Hobson Francis & Son, 97John, N. Y.
Jessop Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West, N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones B. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N.Y.
Frankford Steel Co., Philadelphia
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller, Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss F. W., 83 John, N. Y.
Naylor & Co., 90 John, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N.Y.
Wardlow S. & C., Sheffield, Eng
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beaver-Webb, J., 145 Broadway.
Hicks & Dickey, Philadelphia Pa.

Steel Nails
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs. *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N.Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng 91 John, N. Y.
Leng John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops
J. R. Torrey & Co. Worcester, Mass.

Swaging Machines
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass.
Diosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Tin Plates and Metals.
Merchant & Co., Phila. and N. Y.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W. Springfield, Mass.
Eitrich Hdw Mfg. Co., Plantsville, Ct
Fray, John S & Co., Bridgeport, Conn.
Fulton Iron and Engine Works, Detroit, Mich.
Hoague, J. H & Co., Chicopee, Mass
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Transom Lifters.
Reiher F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks. *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Riehle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co., 19 Murray, N. Y.

Tubes, Steel.
Leng John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Type Writers.
Hammond Type Writer Co., 75-77 Nassau, N. Y.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Leng John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Velocipedes.
Chieftain Hay Rake Co., Canton, O.

Vises.
Howard Iron Works, Buffalo, N. Y.
New London Vise Works, New London, Conn.
Prentiss Vise Co., 23 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers
Mason Iron Co., Philadelphia, Pa.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.
Salem Lead Co., Salem, Mass.

Wheelbarrows.
Bryan Mfg. Co., Bryan, Ohio.

Wheels.
I. A. Weston & Co., Syracuse, N. Y.

Window Cleaners.
Bosley, D. W. & Co., Chicago.

Window Screen Frames.
Boughton, J. W., Philadelphia, Pa.

Window Screens.
Boughton, J. W. Philadelphia, Pa.
Darby, Edw. & Sons, Philada., Pa.
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren St., N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd, Pittsburgh, Pa
Howard & Morse, 45 Fulton, N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co., Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co. Trenton, N. J.
Washburn & Moen Mfg Co. Worcester.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass.
Darby Edward & Sons, Philadelphia.
Estey W. S., 71 Fulton, N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.

Wire Cutters.
Cronk Hanger Co., Elmira, N. Y.
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse, 45 Fulton, N. Y.

Wire Goods, *Manufacturers of*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville
Howard & Morse, 45 Fulton, N. Y.
Knapp & Hague, New York.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
Adt John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Sweetser, W. A., Brockton, Mass.

Wire Nails.
American Tack Co. Fairhaven.
Birmingham Wire Nail Co., Birmingham Ct
Dunbar, Hobart & Co., 39 Warren, N. Y
Field A. & Sons Taunton, Mass.
Hartman Steel Co. Ltd., Pittsburgh Pa.
Phillips E. & Sons, South Hanover
Phillips, Townsend & Co. Phil., Pa
Pittsburgh Wire Nail Co., Pittsburgh Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
Wire Goods Co., Worcester.
Trufant W. E., Whitman, Mass.
Whitney A. R. & Co., New York City.

Wire Rods, Steel.
Whitney A. R. & Co., N. Y.

Wire Rope, Iron and Steel. *Makers*
Broderick & Bascom, St. Louis, Mo.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St Louis, Mo.
Upson, Walton & Co., Cleveland, O.
Washburn & Moen Mfg. Co., Worcester, Mass.

Wire, Spool.
Malin & Co., Cleveland, O.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Fall N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co Springfield, Mass.
Billings Spencer & Co., Hartford Conn.
Coes Wrench Co, Worcester, Mass.
Utility Wrench Co, N. Y.
Williams, J. H., Brooklyn, N. Y.

Wrench Jaws.
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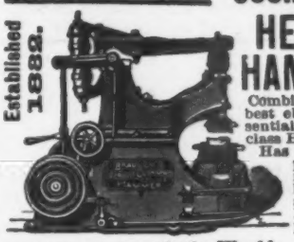

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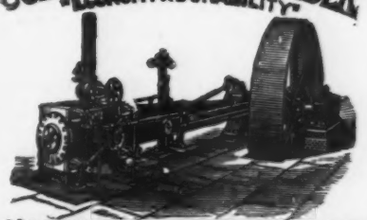

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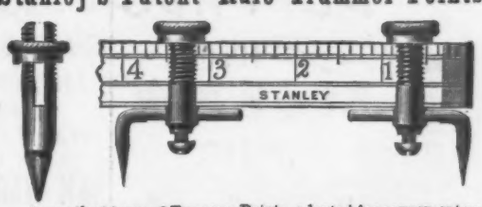

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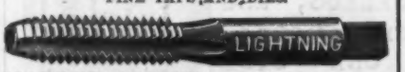

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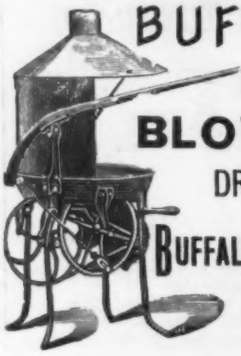

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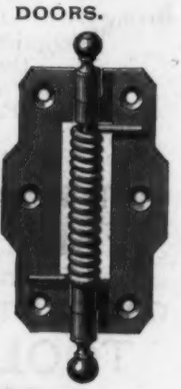

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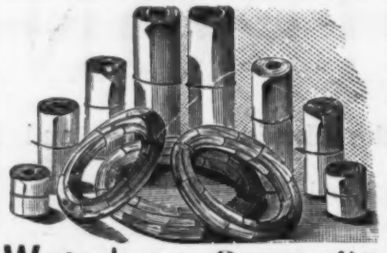

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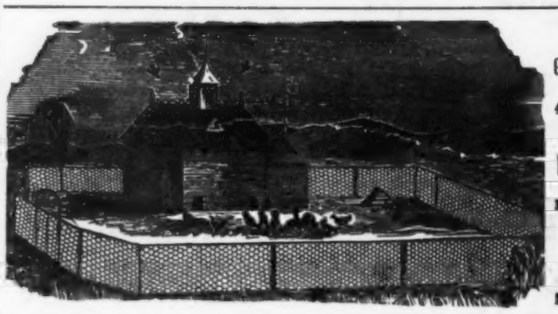

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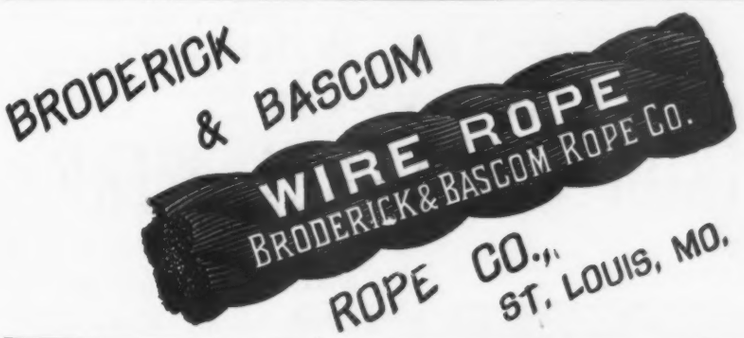

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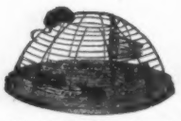

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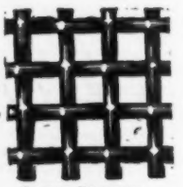

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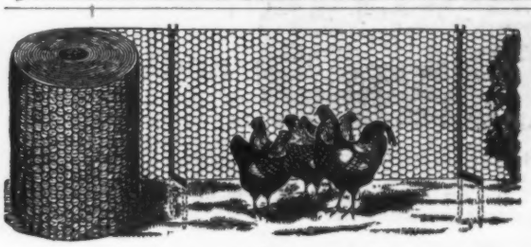

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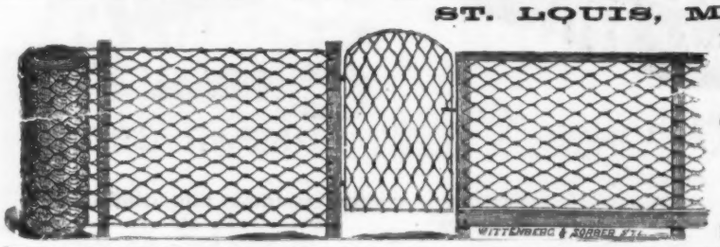

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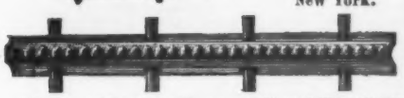

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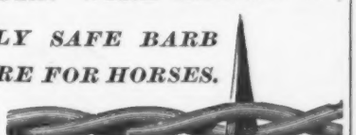

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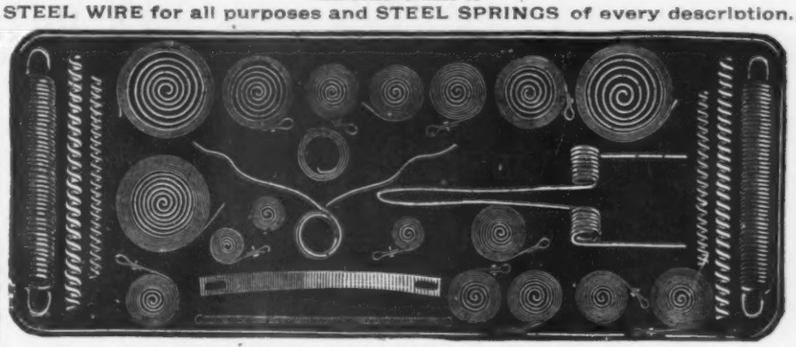

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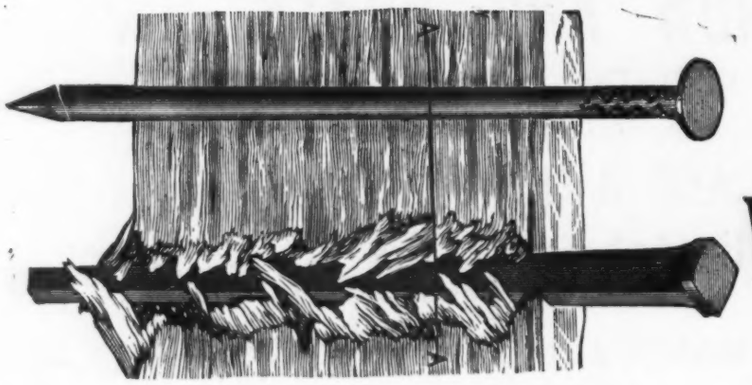

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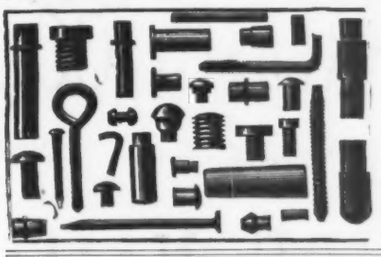

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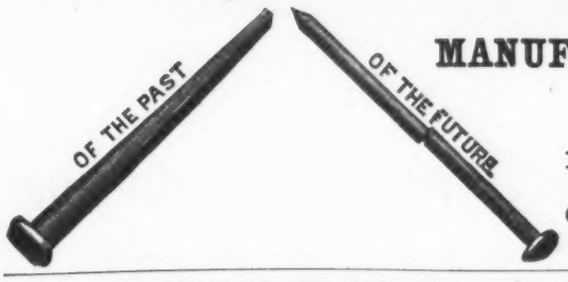

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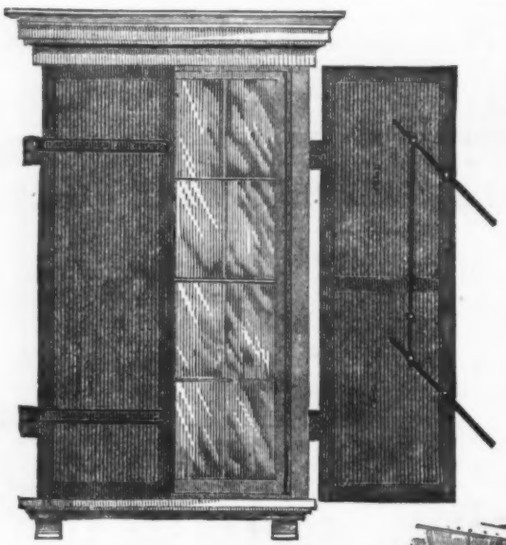

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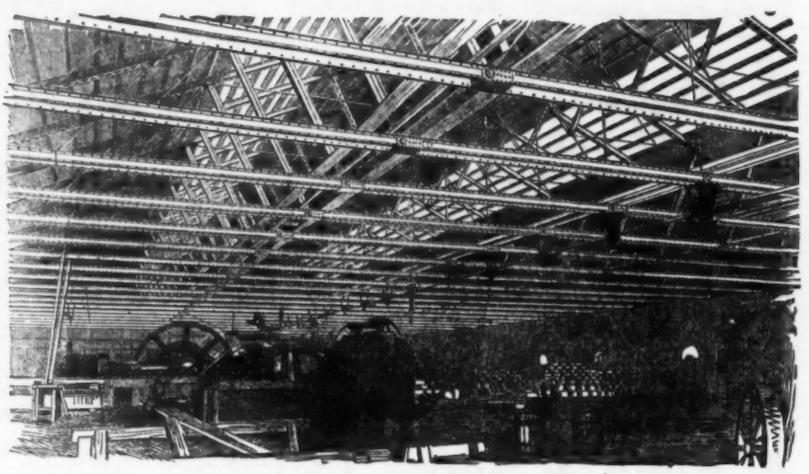

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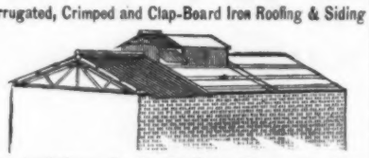

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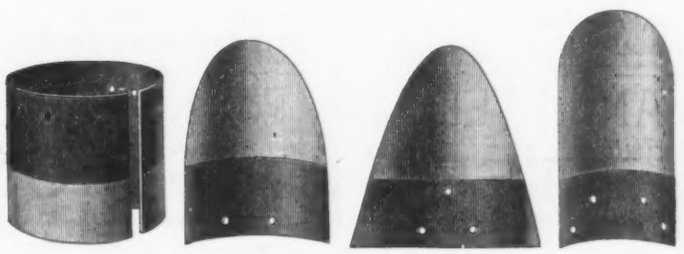

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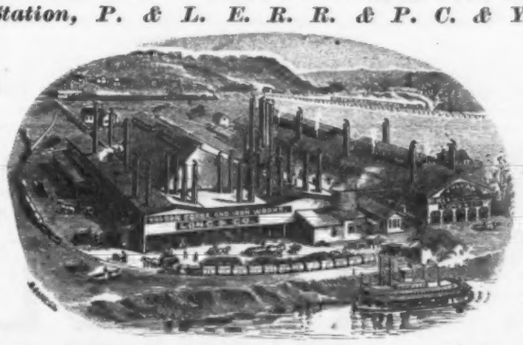

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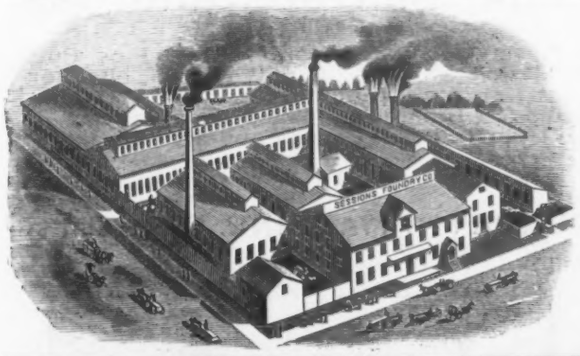

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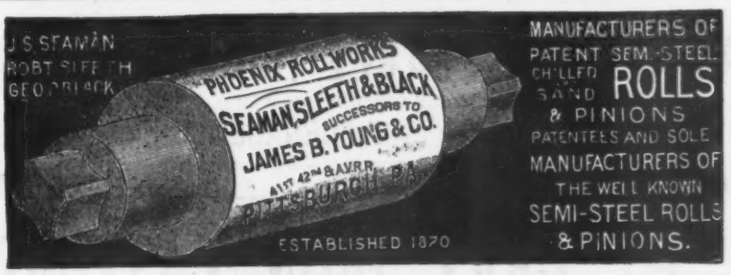

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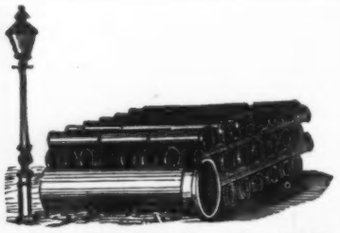

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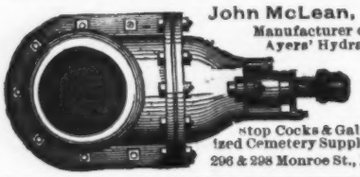

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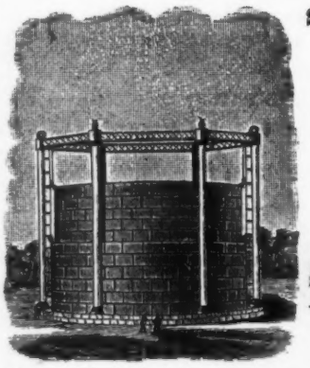

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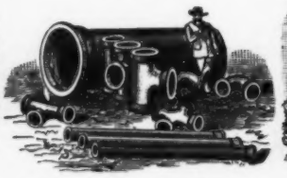

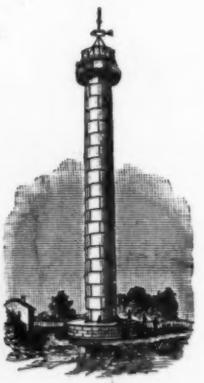

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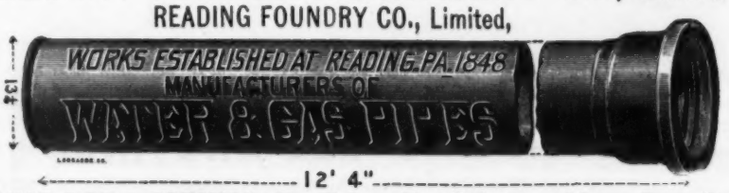

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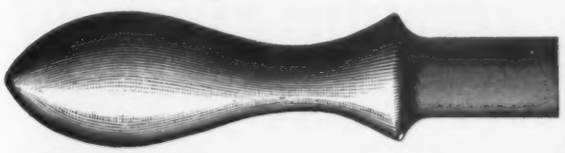

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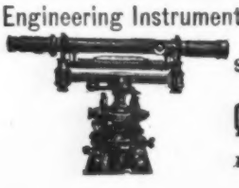

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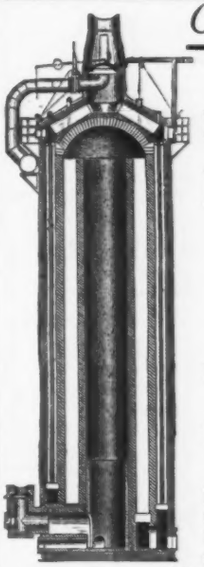

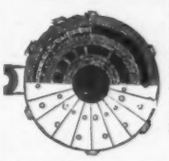

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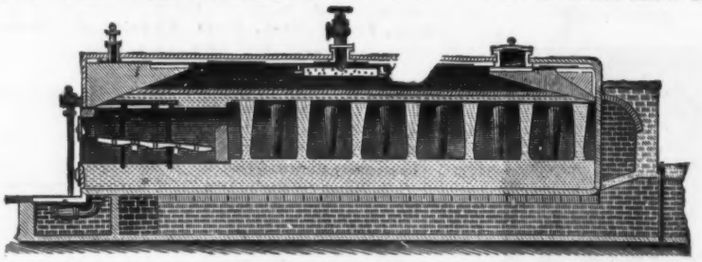

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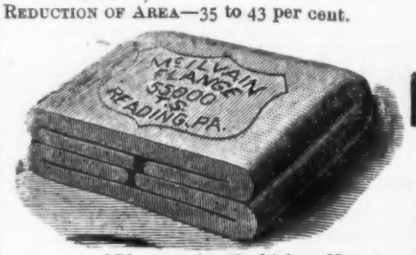

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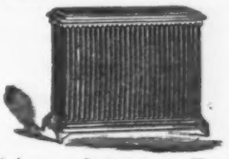

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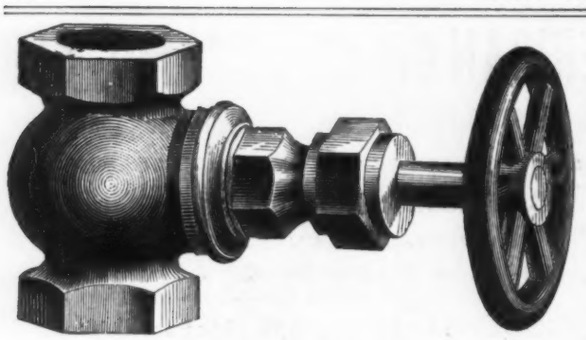

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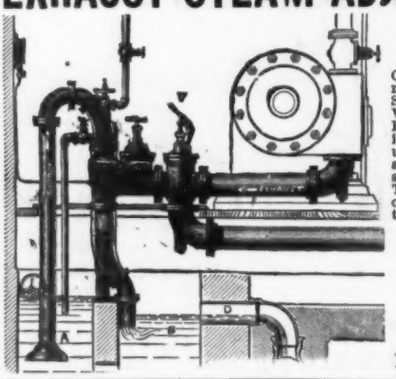

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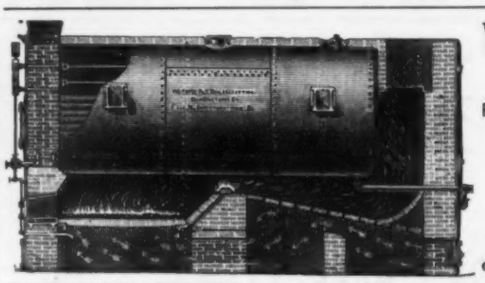

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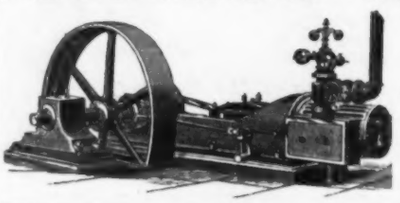

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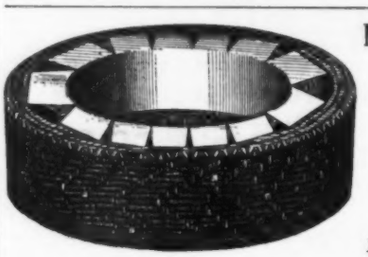

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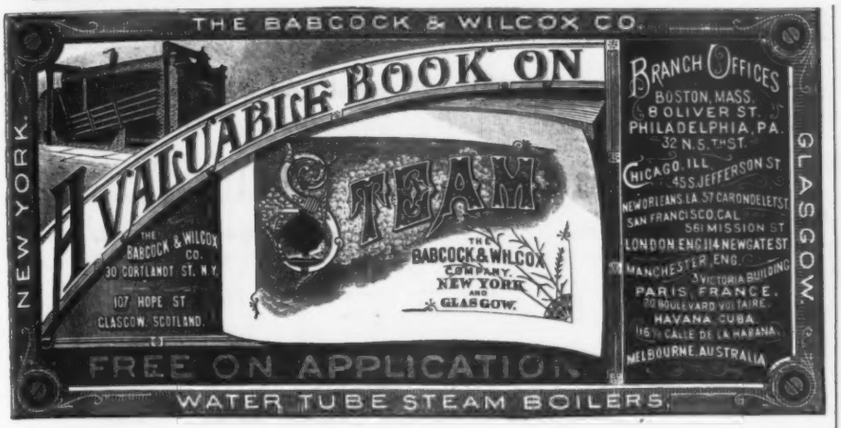

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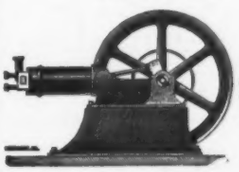

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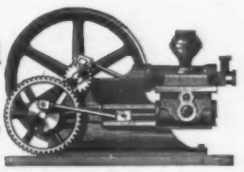

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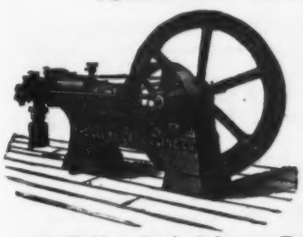

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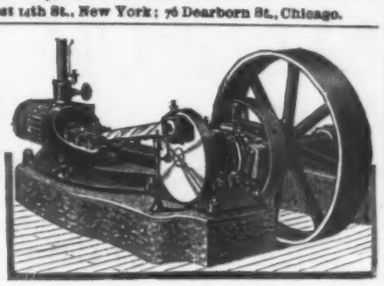

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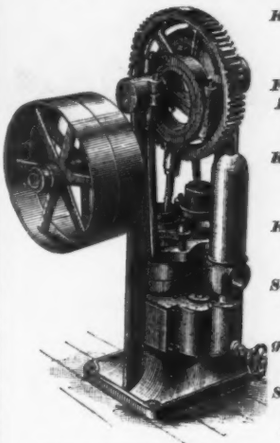

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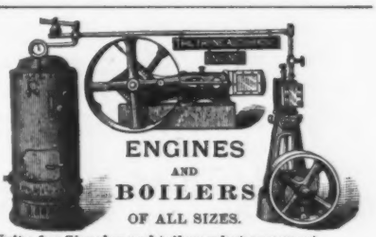

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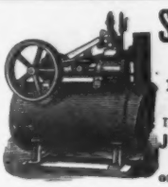

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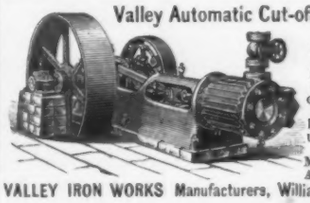

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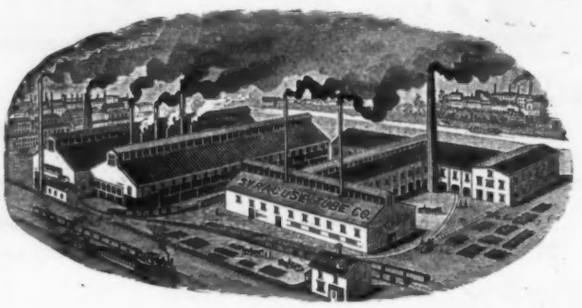

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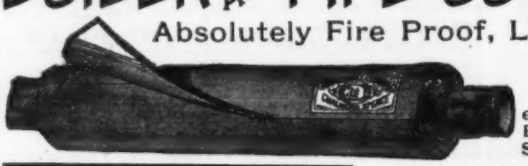

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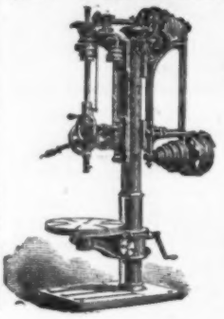

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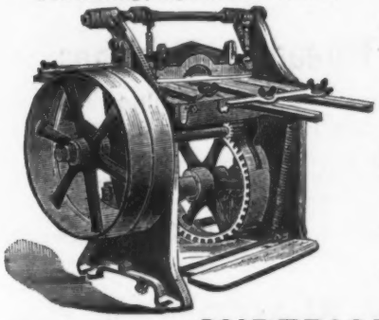

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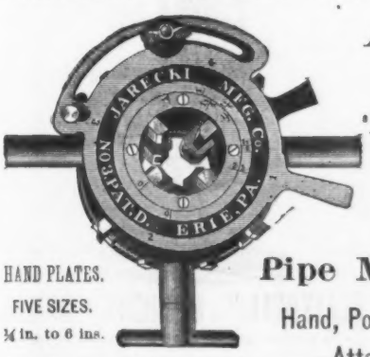

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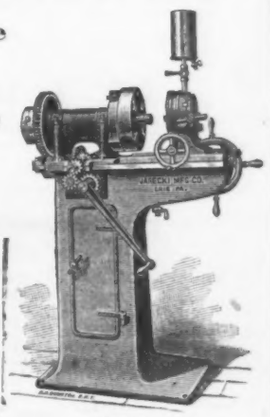

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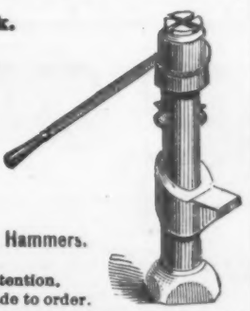

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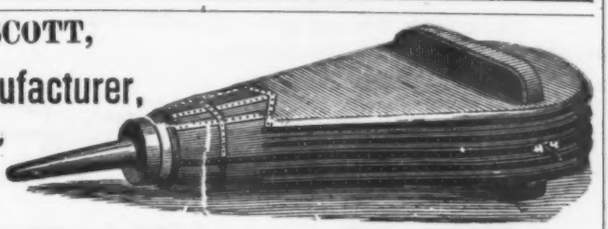

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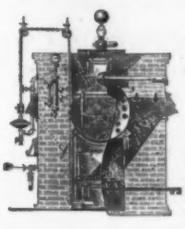

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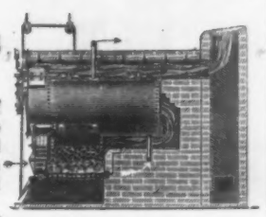

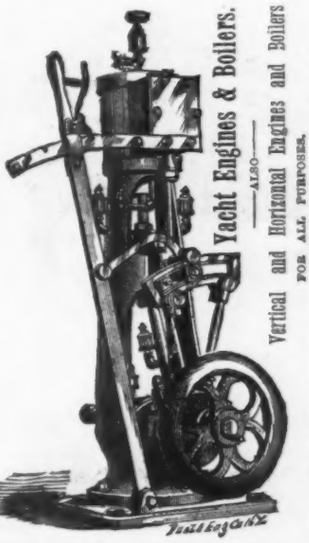

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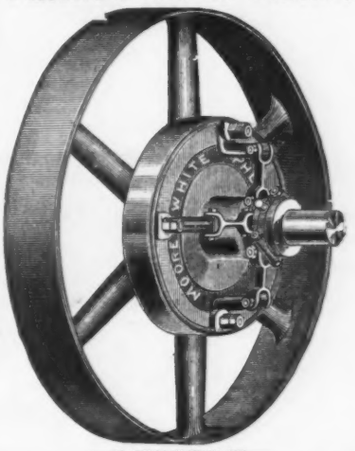

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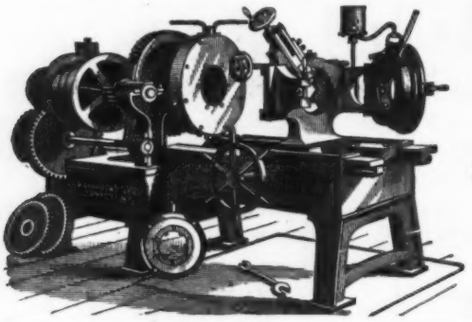

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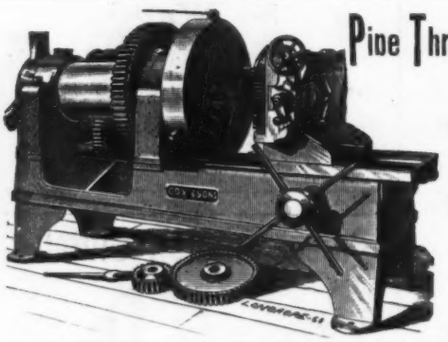

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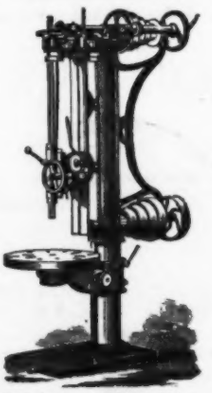

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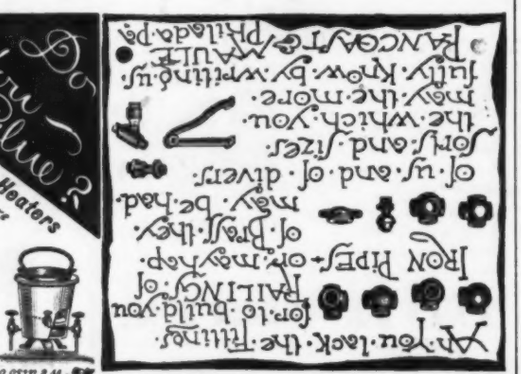

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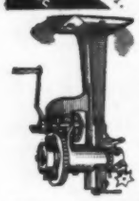

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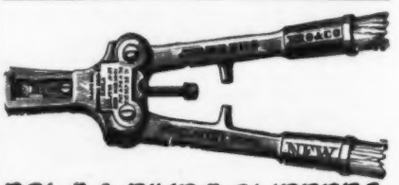

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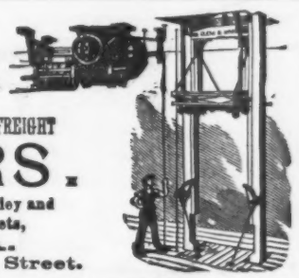

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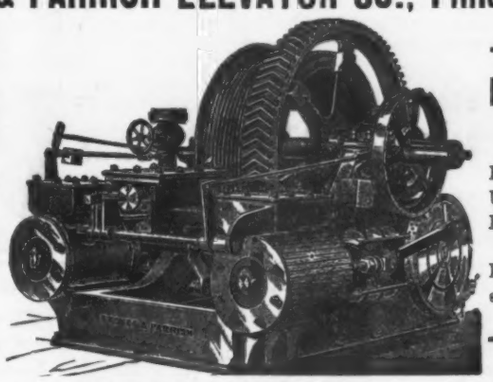

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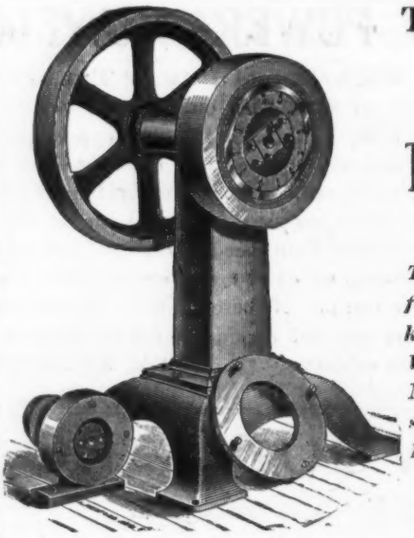

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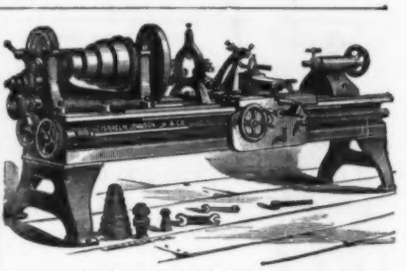

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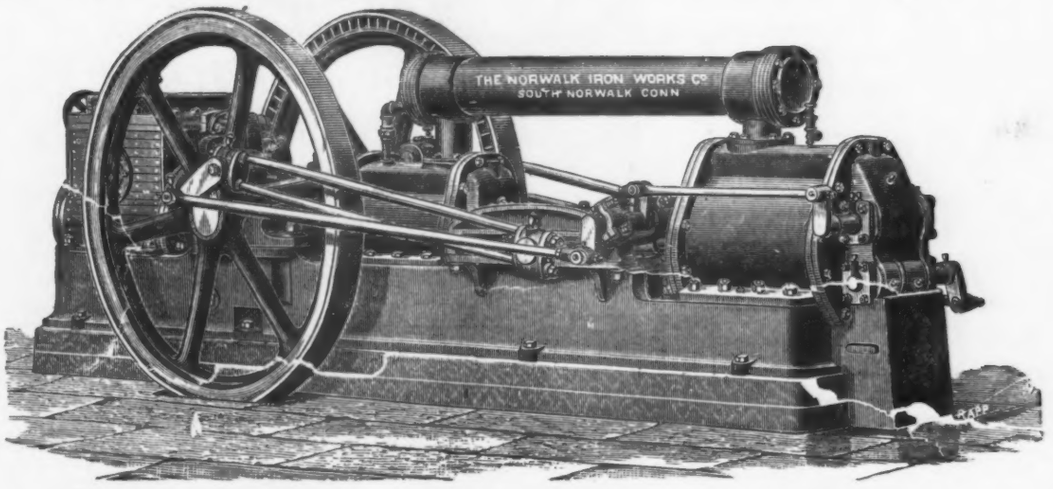

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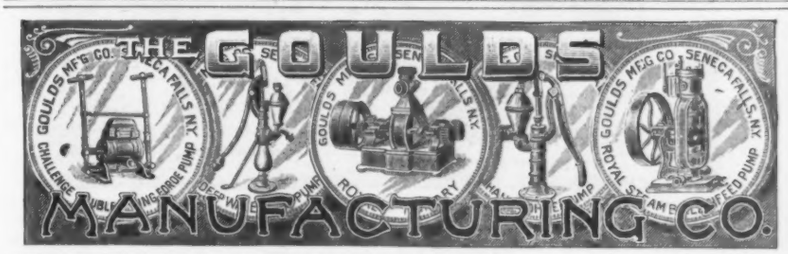

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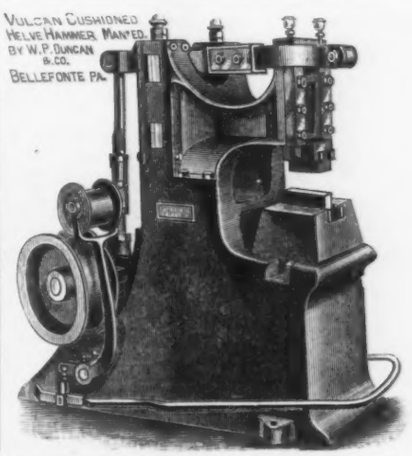

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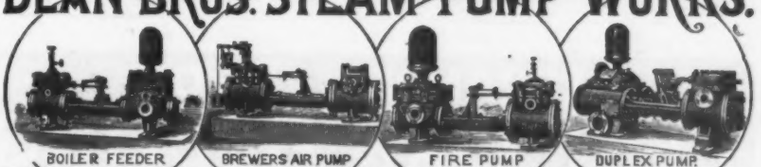

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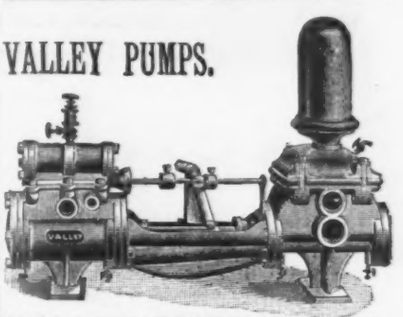

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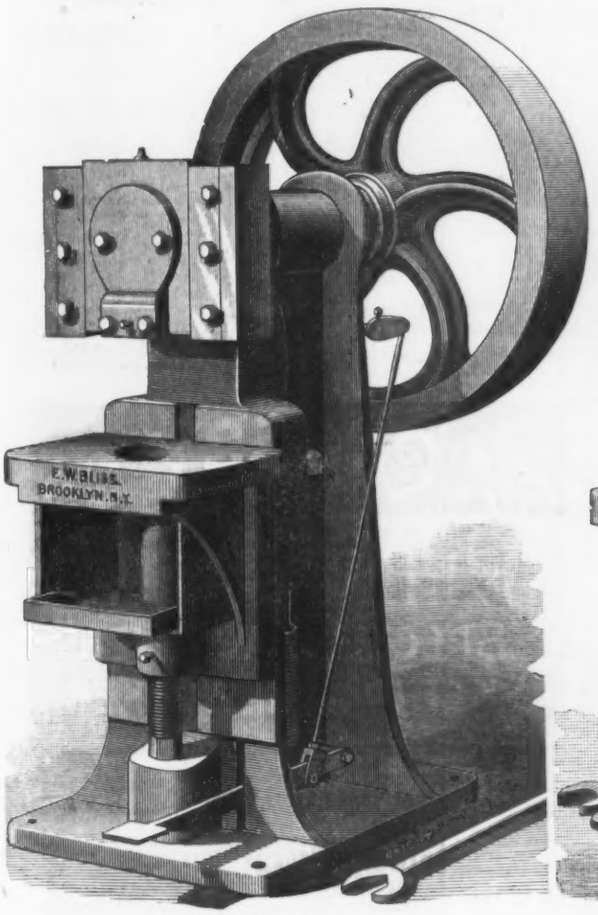

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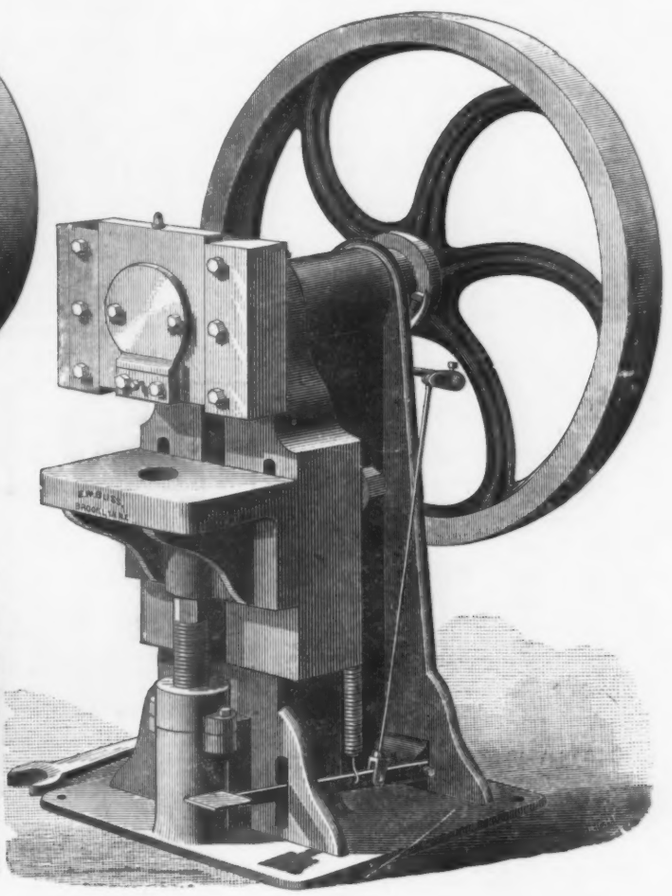

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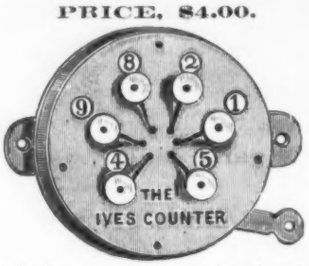

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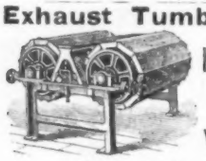

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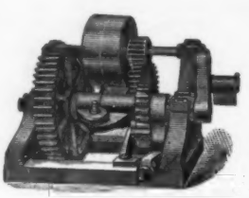

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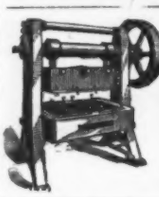

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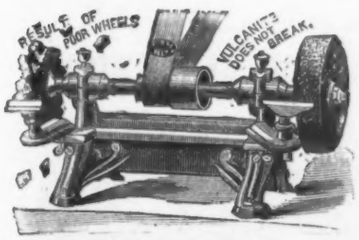

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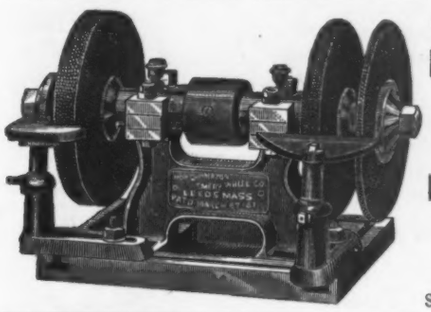

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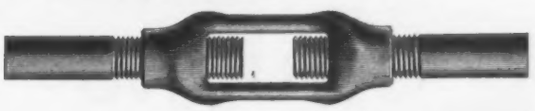
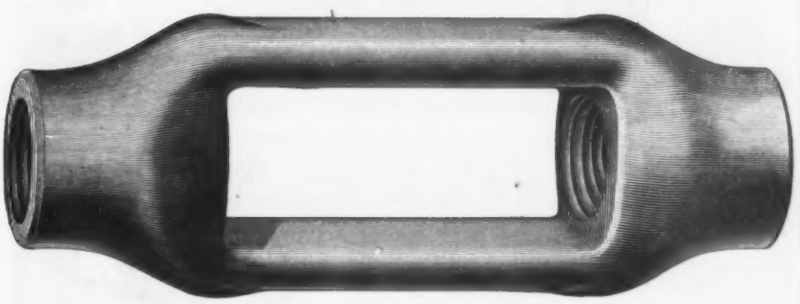
BEST.  CHEAPEST.



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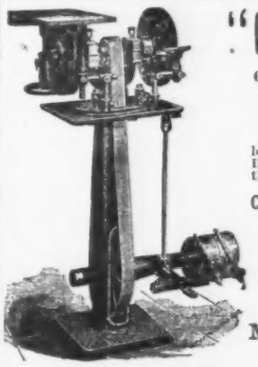

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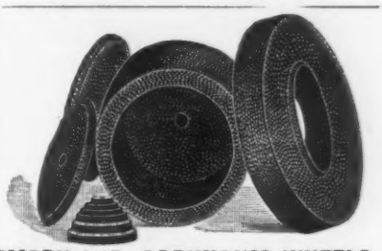

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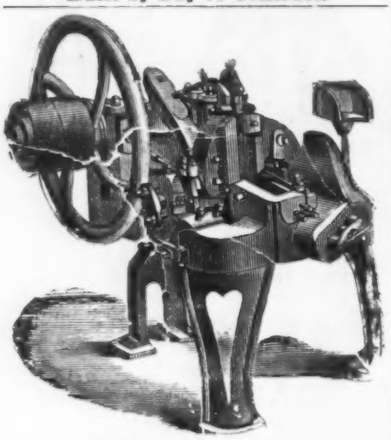

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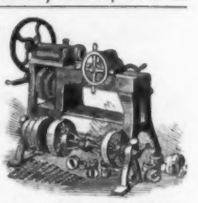

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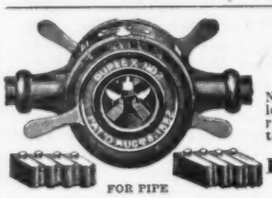

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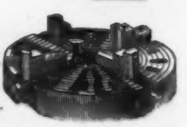

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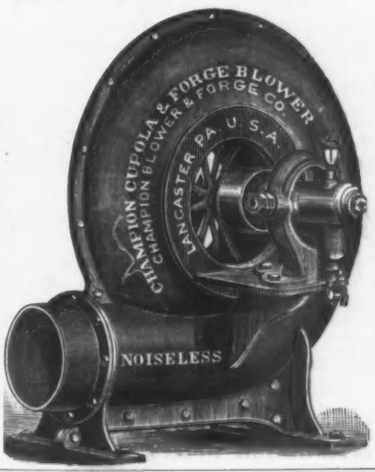

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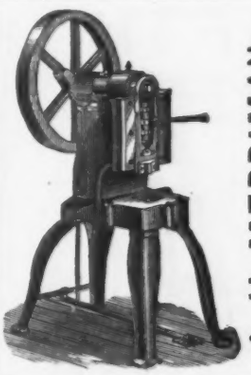

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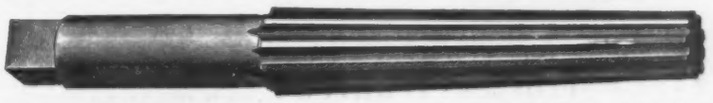

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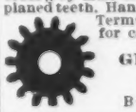

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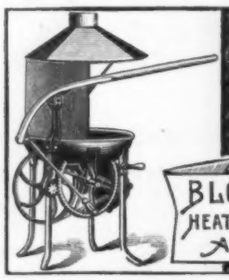

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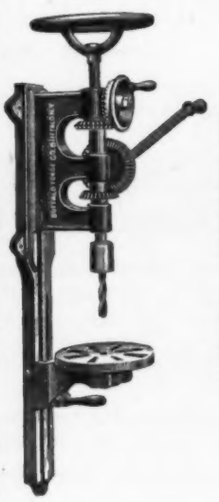

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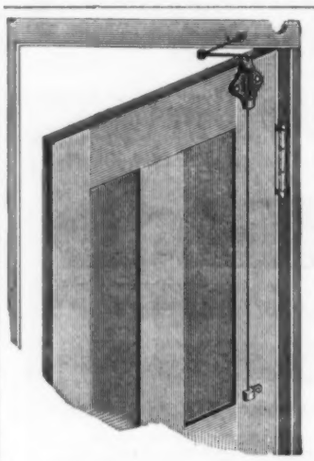

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1 each No. 1 and No. 2 Hand Lathes. Lodge, Davis & Co.
1 10-inch Hand Lathe.
1 13 x 5 Turret Lathe, Lodge, Davis & Co.
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LATHES.—Second-hand.

2 13 x 5 Pratt & Whitney Plain Lathes. Good as new.
1 17 x 7 Cady Lathe. Good order.
1 18 x 8 N. Y. Steam Engine Co.'s Lathe. Good order.
1 18 x 8 New Haven Lathe. Good order.
1 19 x 8 Lodge, Barker & Co. Lathe. Good order.
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2 20 x 7 Ames Lathe. Good order.
1 20 x 10 Smith Lathe. Good order.
1 20 x 12 New Haven Lathe. Good order.
1 25 x 13 Phoenix Lathe. Good order.
1 25 x 17 Hewes & Phillips Lathe. Good order
1 25 x 16 New Haven Lathe. Good order.
1 36 x 9 New Haven Lathe. Good order.

PLANERS.—New.

1 20 x 20 x 4 Williams Planer.
1 24 x 24 x 6 Pease Planer
1 30 x 30 x 8 Pease Planer

PLANERS.—Second-hand.

1 16 x 16 x 3 ft. New Haven. Good order.
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1 24 x 24 x 7 New Haven. Good order.
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1 36 x 36 x 9 Stevens. Good order.
1 36 x 36 x 13 Stevens. Good order.
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1 20-inch Lodge, Davis & Co. Lever Drill. New.
1 20-inch Lodge, Davis & Co. Wheel & Lever Drill. New
1 Lodge, Davis & Co. 25, 28, 32 & 40 B. G., P. F. Drill. New.
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1 set Boiler Maker's Rolls, 8 ft. 3 in.
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1 16 x 36 Horizontal Engine. Good order.
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86 Engines, Horizontal and Vertical, new and second hand, 4 in to 10 in. cylinder.
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1 18 in. x 10 ft. " " " "
1 18 in. x 8 ft. " " Wamesit. "
1 18 in. x 8 ft. " " Second-hand.
1 18 in. x 6 ft. Screw Cutting. " "
1 1-Horse Acme Oil Engine.
1 4-Horse Yacht Engine, complete.
1 15 " " " "
1 20 " Horizontal Engine; and 30-Horse Return Tubular Boiler; first-class order; complete; all castings, fittings and stock.

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1 " 54 in. x 20 ft.
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1 " 24 in. x 14 and 16 ft.
1 " 22 in. x 10 and 12 ft.
1 " 20 in. x 10 and 12 ft.
1 each " 18 in. x 8 and 10 ft.
1 " " 17 in. x 8 ft.
1 " " 16 in. x 6, 8 and 10 ft.
1 " " 14 in. x 6 and 8 ft.
6 " " 12 in. x 5 ft.
1 " " 11 in. x 4 ft. and 5 ft.
1 " " 10 in. x 3½ ft. Foot power.
1 15 in. x 6 ft. Brass Turret Lathe.
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1 " 24 in. x 24 in. x 6 ft.
1 " 26 in. x 26 in. x 8 ft.
1 " 30 in. x 30 in. x 8 ft.
1 " 36 in. x 36 in. x 9 ft.
1 " 50 in. x 50 in. x 12 ft.
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1 " each 12, 14, 20 and 28 in. stroke.
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Six 50 " Hor. Tubular Boilers Good order.
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One 3 Spindle Drill.
One 36 in. Swing by 16-ft. bed Engine Lathe.
One 24 x 16-ft. Engine Lathe.
One 16 x 8-ft. Harrington Lathe.
One 16 x 6-ft. N. Y. Steam Engine Co.'s Lathe.
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One Fox Lathe with attachments.
One 14 x 10 x 10 Worthington Duplex Pump.
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Four Sturtevant Blowers. Second-Hand.

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1 32 in. x 18 ft. bed, treble-geared **LATHE.**
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These Planers are held at very low prices.

1 72 in. Pulley **TURNING MACHINE.**
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24 in. " " "	Common "	450
24 in. " " "	Improved "	500
25 in. " " "	" "	650
15 in. Traverse Head Shaper, with Improved Vise		550
10 in. x 10 in. x 2 ft. Planer		180
16 in. x 16 in. x 4 ft. "		360
22 in. x 22 in. x 5 ft. "		450
24 in x 24 in. x 6 ft. "		600
26 in. x 26 in. x 8 ft. "		700
30 in. x 30 in. x 8 ft. "		1000
30 in. x 30 in. x 10 ft. "		1075
30 in. x 30 in. x 12 ft. "		1150
10 in. x 4 ft. Hand Lathe		60
12 in. x 4 ft. " "		72
12 in. x 5 ft. " "		75
12 in. x 6 ft. " "		78
15 in. x 6 ft. " "		100
15 in. x 8 ft. " "		107

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1, 2, 3 and 4 Spindle Gang Drills, $120 $135, $150, $165.

14 in x 6 ft. $225

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Brass Turning Lathe, with Turret		500
" " " without "		400

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1 6-in. Pipe-Cutting and Threading Machine.
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1 6-spindle Pratt & Whitney Drill.
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14 in. x 6 ft. Engine Lathe newly repaired	150
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8 x 12 Horizontal Engine, in good order.	
10 x 15 Horizontal Engine, nearly new,	125

Large stock of new Tools, Engine Boiler, &c. Send for stock list. S. M. YORK, Cleveland, Ohio.

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One pair of 30-inch by 72-inch Horizontal Engines, connected to one main shaft, built by the Corliss Steam Engine Co. Cut Gear Wheel, 24 ft. 9-in. diam., 180 teeth. Jack Gear, 9 ft. 7½-in diam., 70 teeth, with its shaft 12 ft 7 in. long, and two bearings. Valve Gear of the crab-claw pattern. Condensing Apparatus connected to each cylinder, of the Corliss Upright Pump type. The gears and all parts of the Engine are in good condition and are now in operation. These Engines are exceptionally heavy and well adapted for Rolling Mill work, or could be connected to blowing cylinders, air compressors, &c., very readily. Delivery, July 1st, 1888. Also, for sale, about 65 ft. of 7 in. Hammered Iron Shafting with couplings, bearings, &c. Also 4 14 ft. Pulleys, 31-in. face fitted to above shaft. Apply to

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" Large Lever Shear.	Cutting old rails.
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" Small " "	" ¾ in
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Upright Tubular Boilers, 15 ft. long. 60 in. diam.	
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One Crane (iron) about 5 tons.	
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Boshes, Puddle Furnace Castings, Steam Piping (cast and wrought iron).	
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One Double Roll Turning Lathe, 24 in. Roll.	
" Single " " "	18 in. "
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75 Tons Stove Plate.
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For Sale or Lease, situate within three miles of the C. & O. Ry., at White Sulphur Springs, W. Va., about 3000 Acres, underlaid near surface by a persistent seam of red oxide iron ore from 10 to 60 feet in thickness. Numerous analyses show

61 per cent. Metallic Iron.
.07 per cent. Phos.
.05 per cent. Sulphur.

Six miles of outcrop have been proved by a number of openings. The helderberg limestones, more than 300 feet thick, are exposed at many points, and the hills containing the New River coking coals are within sight. There are good sites for furnace plants in the immediate vicinity, and ample water for all purposes. For further particulars, apply to

GENL. JOSEPH R. ANDERSON,
Pres. Tredegar Co., Richmond, Va.
OR
WM. N. PAGE, C. and M. E.,
Powellton, W. Va.

FOR SALE.

Hydraulic Vulcanizing Press, made by Holyoke Machine Co., capacity 6000 lbs.; three Plates, 41 in. x 50 in; diam. of Piston 18 in.; Three-Plunger Power Pump and a Hand Pump go with it.

Second-hand Yale Engine, Woodruff Boiler, Berryman Heater and Davis Pump.

Die Sinking Machine made by Ames Mfg. Co., new and for sale cheap.

SIGOURNEY TOOL CO.,
Hartford, Conn.

FOR SALE IN GUILFORD, CONN.

A Factory consisting of a Two story Brick Building, 30 x 70 feet; a Two-story Brick Addition, 22 x 36 feet; a One-story Brick Addition, 14 x 22; a Frame Coal Shed and Store Room; a 40 Horse-power Engine and 50 Horse-power Boiler; a complete line of Shafting, Belting and Steam Pipes for heating; convenient to railroad and tide water, and nearly new; terms easy and price low. Inquire of CHAS. GRISWOLD,
Guilford, Conn.

PROPOSALS FOR STEEL FOR USE IN THE CONSTRUCTION OF THE UNITED STATES ARMORED BATTLE-SHIP "TEXAS," AT THE NAVY YARD, PORTSMOUTH, VIRGINIA.—NAVY DEPARTMENT, Washington, D. C., June 21, 1888.—Under authority conferred by an act of Congress, entitled "An act to increase the naval establishment," approved August 3, 1886, (24 Statutes at Large, page 215,) sealed proposals are hereby invited, and will be received at this Department until 12 o'clock noon, on Monday, the 23d day of July, 1888, for furnishing the following classes of material for use in the construction of said ship: CLASS A.—*Steel plates.*—About nine hundred and twenty (920) tons of steel plates from 2⅛ to 25 pounds per square foot. CLASS B.—*Steel shapes.*—About five hundred and three (503) tons of steel shapes, as follows: About two hundred and seventy (270) tons of angle-bars of various sizes; about one hundred and thirty-two (132) tons of angle and T-bulb beams, with proper curvature, from 11 to 24½ pounds per lineal foot; about ten (10) tons of T-bars, of 8 pounds per lineal foot; about ninety-one (91) tons of channel-bars, of 10, 15 and 25 pounds per lineal foot. CLASS C.—*Steel rivets.*—About one hundred (100) tons steel rivets, from ⅜ inch to 1¼ inch diameter. CLASS D.—*Steel castings.*—About one hundred and twenty (120) tons of steel castings, of various shapes, including stem, stern-post, hawse-pipes, riding and mooring bitts, chain-pipes etc. The tons of material herein called for to be of 2,240 pounds each. All said material to be of such detailed dimensions, weights and shapes as may be required in the construction of the vessel, and to be delivered at such place or places in the Navy Yard, Portsmouth, Virginia, as may be designated by the Commandant of said Yard. Deliveries to commence within thirty (30) days from the date of contract, and to be completed within six (6) months from such date: the material to be delivered promptly, in accordance with a detailed schedule prepared by the Assistant Naval Constructor at said Navy Yard, and in the order required to carry on the work to the best interests of the Government. All material to be of domestic manufacture, and to be accepted only after passing such tests as may be prescribed therefor by the Secretary of the Navy. Proposals must be in accordance with forms which will be furnished on application to the Bureau of Construction and Repair, and may be for one or more of the classes designated, but no bid for a portion of any class will be considered. Each proposal must be accompanied by satisfactory evidence that the bidder is able to furnish and deliver the material for which he bids. Each proposal must be accompanied by a certified check, payable to the order of the Secretary of the Navy, for an amount equal to five per cent. of the bid. The check received from the successful bidder will be returned to him on his entering into a formal contract for the due performance of the work, and giving bond for the same, with satisfactory surety, in a penal sum equal to twenty-five per cent. of the amount of his bid; but in case he shall fail to enter into such contract and to give such bond within twenty days after notice of the acceptance of his proposal, the check accompanying such proposal shall become the property of the United States. All checks accompanying proposals which are not accepted will be returned immediately after the award shall have been made. Information relative to the dimensions and shapes of material, and all other information essential to bidders, will be furnished on personal application to the Bureau of Construction and Repair, Navy Department. Proposals must be made in duplicate, and enclosed in envelopes marked "Proposals for Steel for the Armored Battle-ship 'Texas'," and addressed to the Secretary of the Navy, Navy Department Washington, D. C. Each class of materials will be bid for separately, and the Secretary of the Navy reserves the right to reject any or all bids, or the bids on any class or classes, as, in his judgment, the interests of the Government may require.

D. B. HARMONY, *Acting Secretary of the Navy*

AGENCY WANTED

OF

WIRE NAIL MILL

For New York, New Jersey and New England States.

Address "D. G.," Box 91,
Office of *The Iron Age*, 66-68 Duane St., N. Y.

TO LET.

Office and Sample Room.
One half of Basement. All of Subcellar.
HUMASON & BECKLEY MFG. CO.,
80 ChambersStreet, New York

VALUABLE PATENT FOR SALE.

A rare opportunity for a good business man with ample capital to engage in the manufacture of a staple article, which has already proven its merits. This will bear the closest investigation.

Address R. M. FULTON,
Room 23, German American Bank Building,
St. Paul, Minn.

TRAVELERS WANTED

On Commission for ready selling articles as side line. No competition and Patented.

HARDWARE TRADE SOLICITED.

Address with reference.

CLINE MFG. CO.,
70 and 72 W. Washington St., Chicago.

FOR SALE.

Hardware Store, in a growing and prosperous New England city. Will inventory about $18,000. Satisfactory reasons for selling. Address

"BUCK,"
Office of *The Iron Age*, 66-68 Duane St., New York.

WANTED.—30,000 DOLLARS in an established Iron Manufacturing Business, now running full on orders; last year did $165,000, making 10%; plant well-located in a large manufacturing city; both rail and water communication; capital wanted to increase capital stock and enlarge plant; to the proper person a salaried position would be given. Address

"FULL ORDERS,"
Office of *The Iron Age*, 66 and 68 Duane St., N. Y.

EXPORT.

The advertisers (English Merchants) having imported American Hickory Woodware for the last 12 years, are anxious to secure the sale of another line of American manufacture. Have a connection with Collieries, Ironmongers, Engineers and Colonial Merchants. American references given. Address "J," Box 44, office of *The Iron Age*, 66 and 68 Duane St., New York.

EXPORT AND COMMISSION HOUSES.

Send for our Spanish or English catalogues of Grinding and Polishing Machinery and Supplies with discounts for export trade. Those having connection or correspondence with Machinery or Hardware Houses will find our goods profitable and meeting ready sale.

DIAMOND MACHINE CO.,
Providence, R. I.

PROPOSALS FOR STEEL PLATES, &c.—June 30, 1888.—Sealed proposals endorsed "Proposals for Steel Plates, &c.," will be received from manufacturers or regular dealers only, at the Bureau of Provisions and Clothing, Navy Department, Washington, D. C., until 11 o'clock A. M., July 24, 1888, and opened immediately thereafter in the presence of bidders, for the supply, at the Navy Yard, Washington, D. C., of 32 steel plates, 57,680 pounds; 16 angle-bars, 1,840 pounds; and 8 deck-beams, 624 pounds. Physical character of metal to be: Tensile strength, 70 000 pounds; elongation, 20 per cent.; contraction 35 per cent.; length of specimen (working part) equal to four times the diameter. Time of delivery, on or before August 30, 1888. Tie bids decided by lot. The above articles must pass the usual naval inspection, and a reservation of 20 per cent. will be withheld from the amount of each delivery until the completion of the contract. Bidders are referred to the Commandant at the Washington Navy Yard for specifications, forms of offer, and all information relative to the articles required. The proposals must be made in duplicate on the proper blank forms *and filled out as indicated by the blank.* The Department reserves the right to reject any proposal not considered advantageous to the Government.

JAMES FULTON, *Paymaster General, U.S. Navy.*

ROLLING AND NAIL MILL MACHINERY FOR SALE.

Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).

One 16-in. Nail Plate Train of three stands of rolls, with pinions, tools and fixtures complete.

One 18-in Muck or Forge Train, two stands of rolls.

One 500-Horse-Power Corliss Beam Engine, with condenser, pumps and other connections.

70 Nail Machines.
3 Spike "
3 Guillotine or Plate Shears.
15 Grindstones, fixtures and countershafts.
43 Gould's Patent Nail Feeders.

About 600 ft. Shafting with pulleys; also Lathes, Planers, Drills and all necessary tools to do repairs.

All in perfect running order and will be sold cheap, as a whole or in parts. Above now located at Weymouth Iron Works, East Weymouth, Mass.

Enquire of

J. F. ROGERS, 101 Milk St., Boston, Mass.
or J. M. LEONARD, Somerset, Mass.

FOR SALE.

A nice new stock of Hardware, Tinware and Stoves, reaching about $8000 or less, as stock is being reduced, in Colorado Springs, Col., the most renowned sanitarium in America. The plumbing business having grown so rapidly they are compelled to sell out the hardware, &c., to give entire attention to former. Address

"Box 845," Colorado Springs, Col.

FOR SALE

A well-established Hardware and Sporting Goods business, located in Jacksonville, Florida. The stock amounting to from $10,000 to $15,000 will be sold at a sacrifice to close the business; sales last year $60,000. The firm has control of the sporting goods trade in Florida, and lease of the best stand in Jacksonville. Address

C. B. BENEDICT,
Jacksonville, Florida

NOTICE.

CANVASSERS WANTED

FOR THE NEW

Milk Shaker.

MANUFACTURED BY

Philada. Milk Shaker Mfg. Co.,

13TH & BUTTONWOOD STS,

Philadelphia, Pa.

Address the Company, with reference.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & Co., and E. BISSELL & Co.
WHOLESALE
HARDWARE AUCTIONEERS,
12 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

NOTICE
TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an agency in Philadelphia please address

J. B. CARTER,
Hardware Manufacturers' Agent.
504 Commerce Street, Philadelphia, Pa.

FOR PRICES ON

MANILLA AND WOOD FIBRE PAILS,

Please address
JOHN BROWER,
P. O. Box 1423,
New York.

PRICE BOOKS.

LARGE SIZE, 500 Pages, 6 x 9½ in. each, $8.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

B. LAMBERSON,
PORTLAND, OREGON.

EXCELLENT BLACK COPIES of *anything written* or *drawn* with any Pen (or Type Writer) by the Patent
AUTOCOPYIST Only equaled by Lithography. Specimens free.
AUTOCOPYIST CO., 166 William St. New York

REMOVAL.

All my stock must be sold. No reasonable offer refused.

1 20 x 48 Corliss Automatic Engine.
1 12 x 42 Green Automatic Engine.
1 12 x 24 in. Horizontal Engine.
1 8 in. x 15 in. " " New.
8 8 in. x 12 in. Ames Engine. Nearly new.
1 5 in. x 10 in. Horizontal Engine.
1 10 H.-P. Horizontal Engine.
1 15 H.-P. High Speed N. Y. Safety Engine.
1 6 H.-P. Baxter Engine and Boiler.
1 4 H.-P. Portable Engine and Boiler.
1 6 Horse-Power Upright Engine.
1 10 Horse Upright Engine
1 5 x 12 Double-Drum Hoisting Engine and Boiler.
2 5 ft. x 16 ft. Horizontal Tubular Boiler.
1 4 ft. x 14 ft. Horizontal Tubular Boiler.
1 40 H.-P. Locomotive Boiler.
1 36 in. x 11 ft. New Locomotive Boiler.
1 12 H.-P. Upright Boiler.
3 15 H.-P. New Upright Steel Boilers.
2 New Steel Yacht Boilers.
4 16 in. x 6 ft. Engine Lathe.
1 14-in Stroke, Hewes and Phillips Shaper.
1 30 in. Back-Geared Drill. Self-Feed.
1 Ames 4-Spindle Drills.
1 Pratt & Whitney 4-Spindle Drill.
1 Double-Spindle Milling Machine.
1 12 in. Heavy Slotting Machine.
1 4 in. Morris & Tasker Pipe Threading Machine.
1 set Rubber Grinding Rolls.
9 Tanks, 8 ft. x 5 ft. x 5 ft. 3 in.
1 Tank, 8 ft. diam. x 8 ft. high.
Nos. 3, 4, 5 and 6 Woodward Steam Pumps.
1 Set Power Shears, cut any width.
4 4 ft. Burr Mills, Complete.
12 Contractors' Side-Dumping Cars.
3 Ingersoll Rock Drills
2 Guild & Garrison Air Pumps.
1 6 ft. Vacuum Pan.

ROBT. J. GRAY,
131st St. and Fourth Ave., New York.

CHANGE OF ADDRESS.

Messrs. W. A. IVES & CO., Hamden, Conn.

(FORMERLY NEW HAVEN, CONN.)

Manufacturers of Augers, Bits, Hollow Augers, Bit Braces, &c.,

Beg to call the attention of the trade to their change of Post-Office address to Hamden, Conn., where their factory is situated. Their New York agency has been discontinued, and they request that all correspondence and orders be addressed, as above, to Hamden, Conn.

FOR SALE.

The Trustees of The Abbott Iron Co., Baltimore, Md., offer for sale, the following:
Hot Rail Saw-Rigging, for cutting to 30 ft., with bed-plate, stands, shafting, gearing, &c.
Gifford Injectors, Nos. 8 and 9.
One Testing Machine, made by Riehlé Bros.
One Railroad Scale, " " 32-ft.l'ng
Four Dimpfel Blowers, 24 in. x 60 in.
Apply to
C. H. ASHBURNER,
P. O. Box 65, Baltimore, Md.

FOR SALE.

This is a rare chance for one or two good live men to buy an interest in one of the best Hardware businesses in this State. Retail sales, $60,000; large profits; no risks; city of 140,000; stock, new; location splendid. Address
"CHARLES."
office of *The Iron Age*, 66-68 Duane St., New York.

FOR SALE.—A COMPLETE RETAIL STOCK OF BUILDERS' HARDWARE AND TOOLS. Store located in a flourishing city of 150,000 inhabitants in the northwest. Has the largest and best trade in the city; business last year $90,000. Stock will inventory from $30,000 to $35,000. Good reasons given for selling. Address
"MINNESOTA."
Office of *The Iron Age*, 66-68 Duane Street, N. Y.

FOR SALE.—Good paying established HARDWARE BUSINESS in Chicago—cheap. For particulars address "HARDWARE," office of *The Iron Age*, 95 Washington St., Chicago, Ill.

DIXON'S GRAPHITE (sometimes called black-lead or plumbago) for a lubricant must be pure; to be pure must be "floated." Ask for Dixon's Dry American Graphite, or address

JOS. DIXON CRUCIBLE CO.,
JERSEY CITY, N. J.

VALUABLE PATENT FOR SALE.

Patent for Plain Back Solid Steel Scoop for handling grain, coal, &c. Perfectly smooth back and smooth front, without rivets; can be made as cheap as the ordinary back-strap scoop.
Address
A. T. HEISER,
Scranton, Pa.

A GOOD HARDWARE BUSINESS FOR SALE.

Wishing to retire from all active business, the undersigned offer for sale their valuable and thoroughly established business. The stock is clean and well selected. Waverly, New York, is a growing place, with considerable manufacturing, and surrounded by a good farming country; has good water, gas works and sewers, also five railroads radiating from it. The location of the store building is central, with every convenience, including hydraulic elevator, &c. The business has been conducted successfully as wholesale and retail; can be continued as we have conducted it, or else we can soon reduce the stock, and it can be conducted as a retail alone.
In negotiating sale, reference given and required.
MERRIAM BROS., Waverly, N. Y.

WANTED.

Address of parties that make a specialty of designing Dies and other Tools for Heavy Drop-Forge Work. Please state terms and references. Address
"DIES,"
office of *The Iron Age*, 77 4th Ave., Pittsburgh, Pa.

FOR SALE.

AN UNUSUAL OFFER.

An old established Hardware Business doing the leading wholesale and retail trade in one of the best towns in Minnesota. This is an opportunity seldom offered. Reason for sale, death of proprietor. Address
H. V. RUTHEFORD,
Attorney-at-Law, St. Paul, Minn.

ATTENTION, MANUFACTURERS. Wanted the address of manufacturers of "STEEL NOVELTIES" and Malleable Iron Castings, both lines of novelties largely used. Address
LOCK BOX 79,
Louisville, Ky.

A SECOND HAND PIPE MACHINE.—For cutting and threading 6 inch and under: arranged for power. Give maker's name and state fully its condition, how long used and cash price. Address
"L. H. B.," P. O. Box 2895, New York City.

WANTED.—A large SHEAR of sufficient strength to cut standard section Iron or Steel Rails, or 5-inch round Iron cold. Address
THE WARREN IRON & STEEL CO.,
Warren, Ohio.

WANTED, AGENCY.

A Hardware firm in Europe would like a good selling article (patent). Address, with samples and full particulars,
SCHWARZ,
Schommerstrasse 11, München, Germany.

AGENCIES WANTED.

Two young men of long experience in Wholesale Hardware business, well acquainted with the trade in Kentucky and the South, solicit correspondence with manufacturers desiring to establish a branch or agency in Louisville, Ky., for Heavy and Light Hardware, Pig Iron, &c.
Address LOCK BOX No. 26,
Louisville, Ky.

AGENCIES WANTED.

The advertisers, two young men, energetic, reliable and experienced in Wholesale Hardware business, solicit correspondence with manufacturers desiring to establish a branch or agency in Chicago. Address
"C. & L.,"
office of *The Iron Age*, 97 Washington st., Chicago, Ill

WANTED.—A twenty-six inch Double Leather Belt. State length, &c.
WARREN SPRINGER,
207 Canal St., Chicago, Ill.

To Stockholders of the Sutro Tunnel Company who have not assented to the Plans of Reorganization:

A guarantee syndicate having been formed, stockholders who have not assented heretofore to the plans of reorganization, but wish to protect their stock from being rendered valueless through foreclosure, must forthwith deposit their shares with the Union Trust Company, No. 73 Broadway, New York, pay the sum of 55 cents per share, and receive therefor the Trust Company's negotiable receipts, which will entitle the holder, after completion of the reorganization, to the same number of shares of stock as now deposited by him and new first mortgage income 4 per cent. bonds in the proportion of $1.00 for each 55 cents cash now paid.

The time for depositing stock and payment of subscriptions expires on July 11, 1888, 3 P. M.

Payments should be made by check on New York to the Union Trust Company, and should be accompanied by the stock duly endorsed in blank, and an authorization to the Union Trust Company; blank forms for this authorization and copies of circulars can be obtained upon application at the Union Trust Co.'s office, or at Room 19, 7th floor, Mills Building. Interest at the rate of 4% will be allowed on subscriptions from the date of payment.

For the Reorganization Committee,

H. R. BALTZER, Chairman,

NEW YORK, June 21, 1888.

REFERRING TO ABOVE ADVERTISEMENT THE REORGANIZATION COMMITTEE HEREBY GIVE NOTICE THAT THE TIME FOR SUBSCRIBING TO THE NEW BONDS IS EXTENDED TO JULY 25TH, 3 P. M

H. R. BALTZER, Chairman.

New York, July 10, 1888.

FOR SALE.

Stock, Tools and Fixtures of well-established Scrap Iron, Metal and Coal Yard, now running; can be leased for a number of years. Address

"METAL,"

Lock Box 1086, Philadelphia.

WANTED, TO LEASE OR PURCHASE, a Machine Shop with tools in New York, Brooklyn or Jersey City. Must be good, well-lighted building, large enough to employ one hundred men and convenient for shipping.

MARTIN KLENEN & CO.,

304 Broadway, corner Duane, New York.

TO BRASS AND COPPER MANUFACTURERS.—A man of unquestionable ability, with twenty (20) years' experience in the construction and management of brass and copper works, desires to connect himself with a newly-projected or established works as Superintendent or Manager. The advertiser has had thorough experience in the detail and management of all departments of roll, sheet brass and copper manufacture. Can give best references. Address "BRASS AND COPPER," office of *The Iron Age*, 66 and 68 Duane Street, New York.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

WANTED—Position in large retail Hardware and Machinery House. Have had experience of four years both as clerk and traveling salesman, for same A 1 reference; bond if required. Address "HARDWARE AND MACHINERY," office of *The Iron Age*, 66-68 Duane St., N. Y.

ROLLER WANTED for ten-inch Train Guide Hand and Pipe Iron Work. This mill has run steadily for many years; non-union mill; good town to live in; present roller returning to the old country; situation now ready. Address

"EASTERN PENNSYLVANIA,"

office of *The Iron Age*, 66-68 Duane St., New York.

WANTED—Hardware Salesman to handle a novelty in Locks on commission. Sells like sugar. Address KIRK BROWN, No. 18 So. Broad St., Philadelphia.

THREE PIG IRON SALESMEN—One for New York State; one for New York City and New Jersey; one for New England States; must have experience and large acquaintance. Address, stating salary and giving references, "PIG IRON," office of *The Iron Age*, 66-68 Duane Street, N. Y.

A MAN competent to superintend a Copper Rolling Mill. Address "H. W. S." office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A PRACTICAL SOLDER MAKER, capable of analyzing Dross and making all grades and shapes of solder. Also a salesman. State experience, present position and salary expected. Address "PRACTICAL," Box 298, Equitable Building, New York City.

IN A RETAIL AND WHOLESALE N. Y. CITY HARDWARE HOUSE, an intelligent and experienced sales and workman. References required, state salary expected. Address "H. W.," P. O. Box No. 129, New York.

FOREMAN FOR BLACK-SMITH AND MACHINE DEPARTMENT of a Street Car Works in the West; one experienced in the use of Dies with Steam Hammers and other labor-saving machinery, and able to produce first class work by the day or piece at reasonable cost; should be able to read mechanical drawings and work from them; must be temperate, of good moral character, energetic and with an inclination to keep his department in perfect order; a man careless or slovenly in manner will not suit, while one having the desired qualities will be appreciated. Address, stating age, former experience and salary expected, "CAR WORKS," office of *The Iron Age*, 66 and 68 Duane St., New York.

A PRACTICAL FOUNDRY FOREMAN by a car manufacturing company. To satisfactory man fair wages and steady employment will be assured. Address, giving references, and stating experience and salary desired, "M. D." Office of *The Iron Age*, 66-68 Duane Street, New York.

A THOROUGHLY COMPETENT SALESMAN well posted on iron-working and wood-working machinery, steam engines and boilers, steam pumps, &c.; good salary and permanent position for right man. Address JOHN R. WILBARTON, Post Office Box 16, Portland, Oregon.

TRAVELING SALESMEN WANTED.—COMPETENT, ENERGETIC AND PUSHING SALESMEN to sell a line of special goods well known to the Hardware, Stove and House-Furnishing Trade; must be familiar with the Hardware Business, and experienced in selling goods on the road, and furnish first-class references. Other lines not conflicting can be taken. Liberal commission. Address "Box 141," Manchester, N. H.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

PIG IRON SALESMAN.—A man of long experience in business, connected with the Iron trade for the past nine years, and having an extensive acquaintance in New York State, is now open for an engagement; first-class references. Address "PIG IRON," P. O. Box 422, Rochester, N. Y.

FOREMAN.—A practical man, energetic and reliable, with good testimonials, familiar with plans and handling men, wants position in Architectural Iron Works. Address "ANGLE," Office of *The Iron Age*, 66 and 68 Duane St., N. Y.

AS FOREMAN MOULDER in any part of the country; have had 28 years' experience in all classes of machine work; best of references furnished. Address JOHN GLEN, office of *The Iron Age*, 77 4th Ave., Pittsburgh, Pa.

A ROLL TURNER accustomed to designing Rolls for shapes and ordinary sizes, Iron and Steel, wants a position. Best of references. Address "BESSEMER," office of *The Iron Age*, 66 and 68 Duane St., New York.

METALLURGICAL CHEMIST with large experience in the manufacture of Bessemer, Siemens Martin, Crucible Cast Steels, and in the management of Blast Furnaces, desires an engagement with reputable manufacturing or commercial concern. Address "T. K. L.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FURNACE MANAGER.—A practical, educated and sober Furnaceman desires a position—coke or coal. Address "F. M.," Box 20, office of *The Iron Age*, 66 and 68 Duane St., New York.

A GENTLEMAN who has had an extensive business experience and who possesses business abilities of a high order, would like to make an arrangement to take charge of a Chicago Agency for some first-class Eastern manufacturing firm. Best of references, both East and West. Address "H.," Office of *The Iron Age* 66 and 68 Duane Street, New York.

AS SUPERINTENDENT of MACHINE WORKS, by a gentleman who has a thorough practical as well as theoretical education; understands handling of foundry; open for engagement after July. Address W. C. MCCLOUD, office of *The Iron Age*, 66 and 68 Duane St. New York.

J. WESLEY PULLMAN,

No. 238 South Third Street, Philadelphia.

BEST IRON ORES

NEW JERSEY. NEW YORK.

LAKE SUPERIOR.

WARWICK PIG IRON

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Steam Boilers, their defects, management and construction. Numerous illustrations and tables. By R. D. MUNRO.....$1.40

Journal of the Iron and Steel Institute, No. 2, 1887. Synopsis of Contents: The Metallurgical and Mechanical Exhibits at the Manchester Royal Jubilee Exhibition, by Thomas Ashbury. The Reduction of Ores of Iron in the Blast Furnace, by Sir Lowthian Bell. Notes on the Basic Open-Hearth Process, by J. W. Wailes. Electric Lighting in Works and Factories, by Prof. J. A. Fleming. Appendix. Notes on the Progress of the Home and Foreign Iron and Steel Industries. Statistics. Comparative Tables. Bibliography.....$6.00

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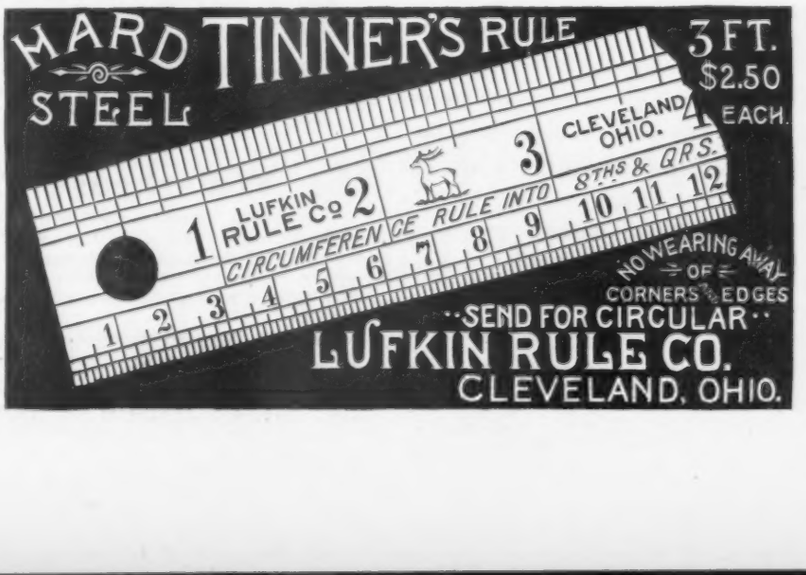

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CHEAP TOOLS!

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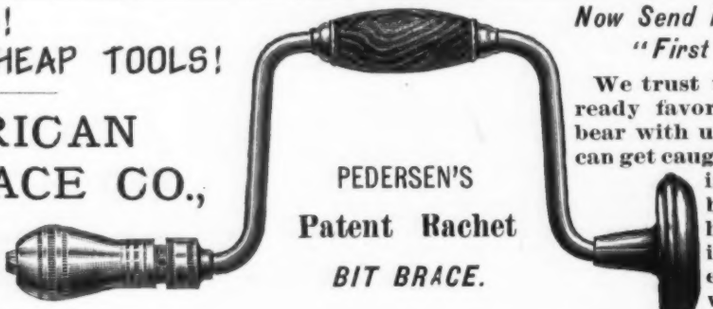

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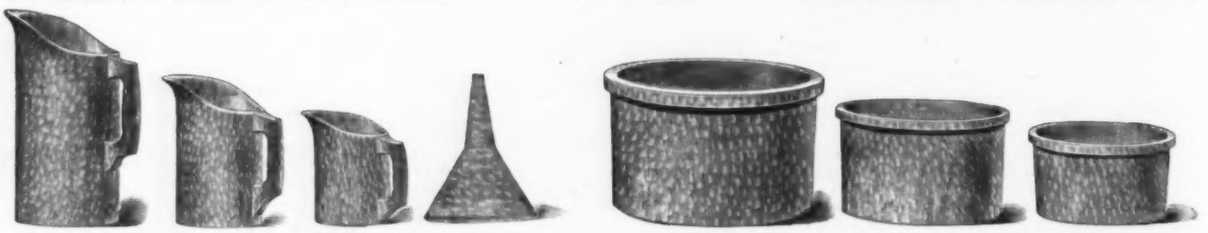

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50	18 x 22 to 20 x 30...	20.50	19.50	18.00	....
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60	26 x 28 to 24 x 36...	25.00	23.00	21.00	....
70	26 x 36 to 26 x 44...	26.00	25.00	22.50	...
80	26 x 46 to 30 x 50...	28.00	26.50	33.75	....
84	30 x 52 to 30 x 54...	30.00	28.00	25.25	....
90	30 x 56 to 34 x 56...	31.00	30.00	27.00	....
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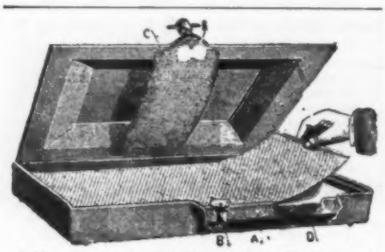

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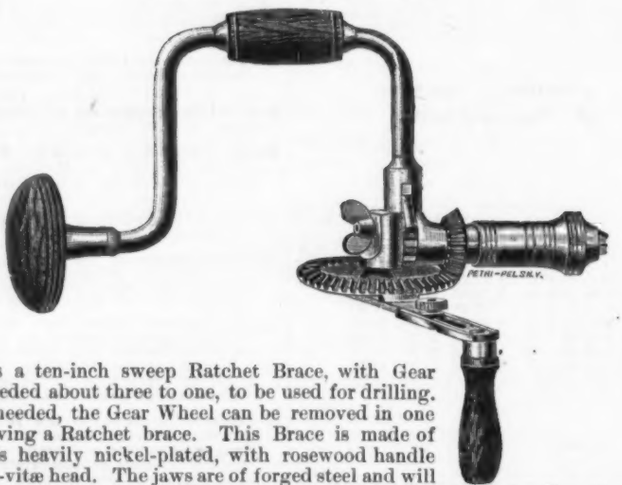

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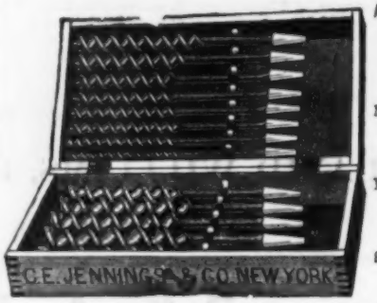

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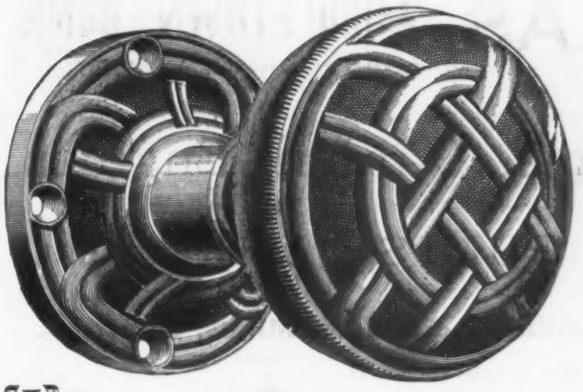

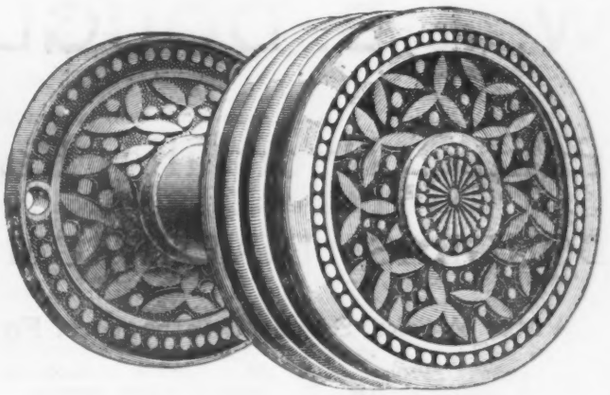

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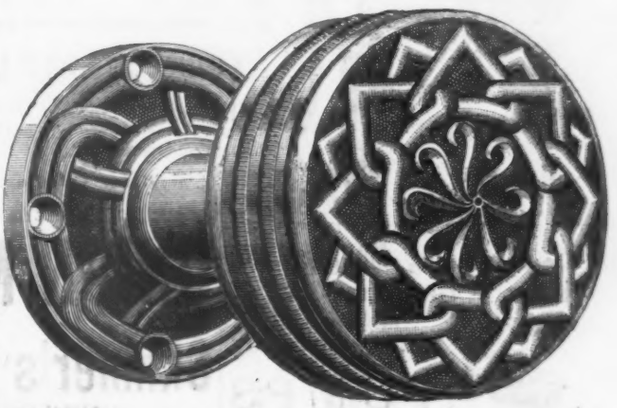

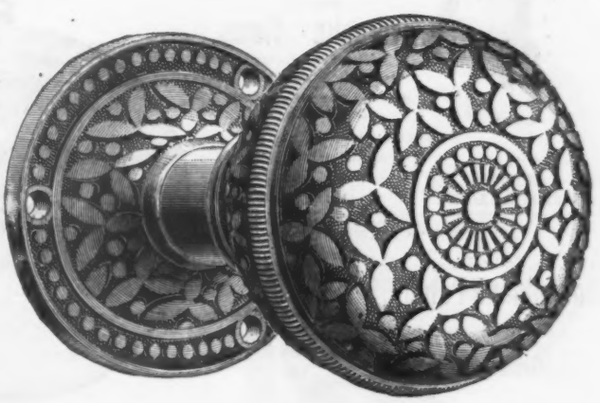

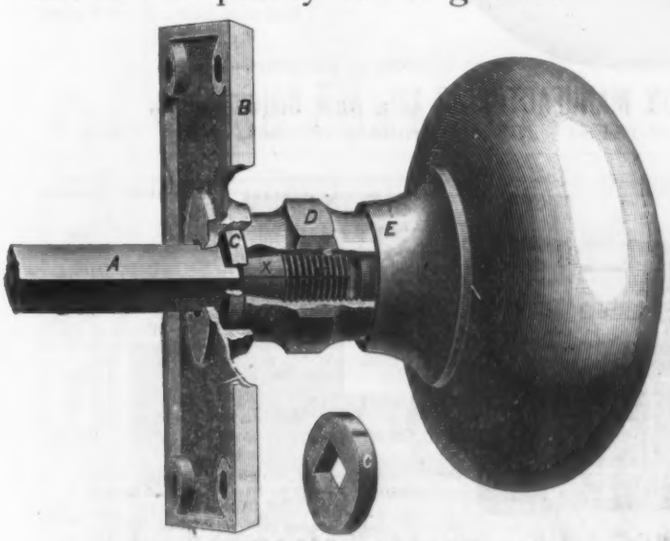

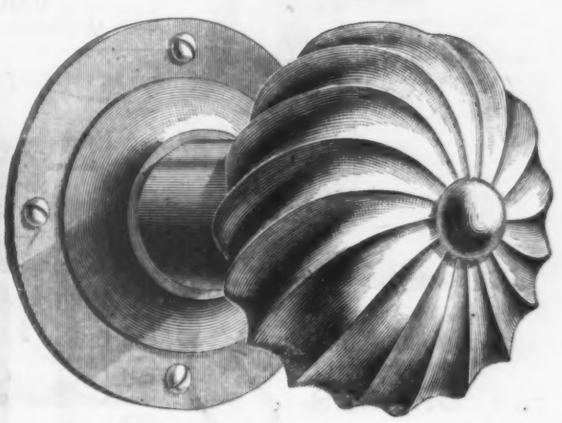

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Fig. 120.

Fig. 70.

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Fig. 209.

Fig. 381.

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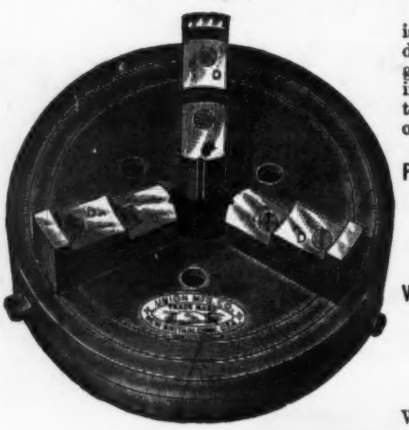

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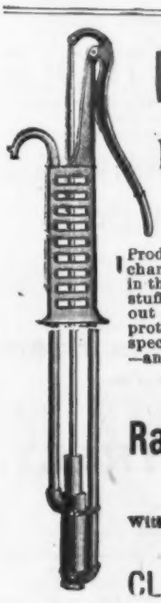

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Ratchet Stocks, Dies & Pipe Vises

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With the Ratchet Stock pipe can be threaded in a corner, down in wells, or in positions that would be inaccessible with other tools.

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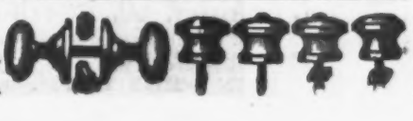

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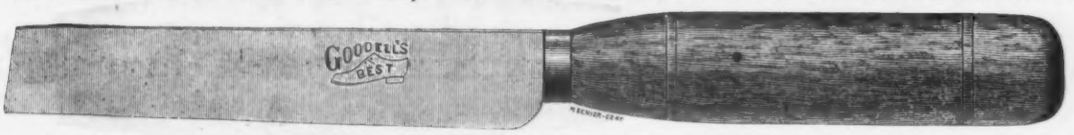

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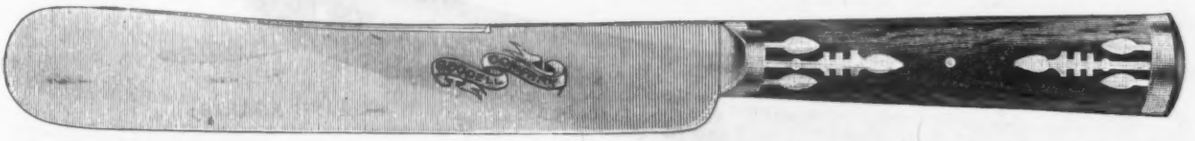

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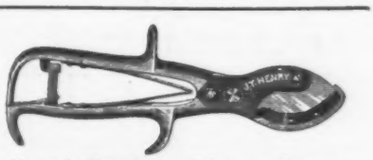

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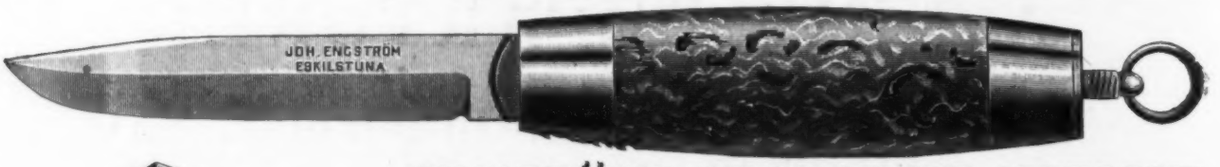

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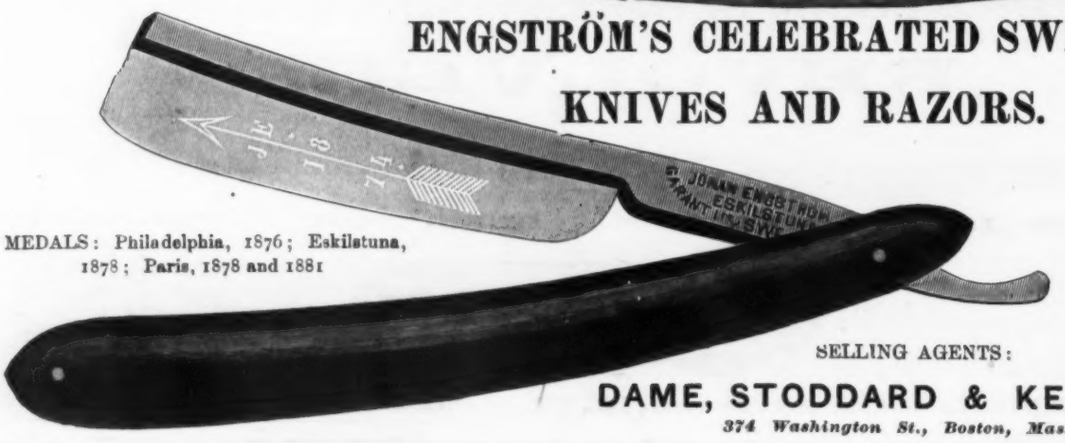

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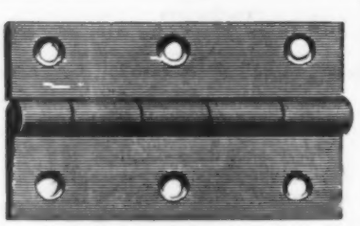

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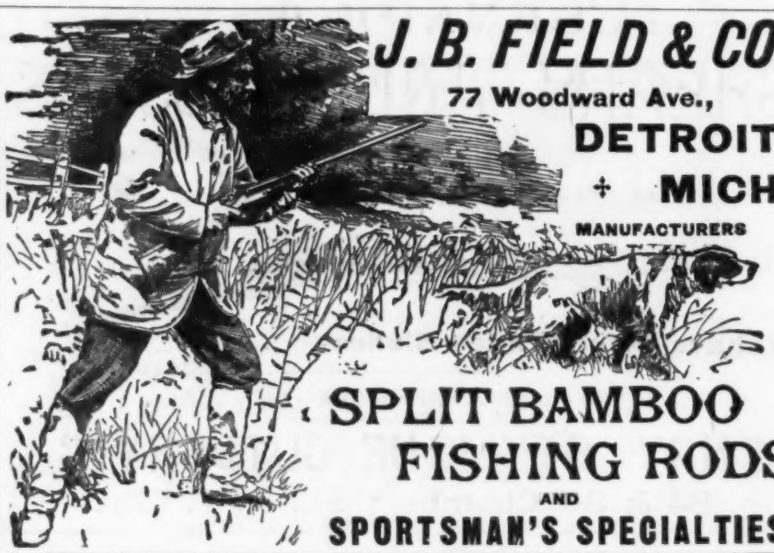

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The Latest production from the Works of SMITH & WESSON, Springfield, Mass., Manufacturers of Superior Revolvers, both Double and Single Action.

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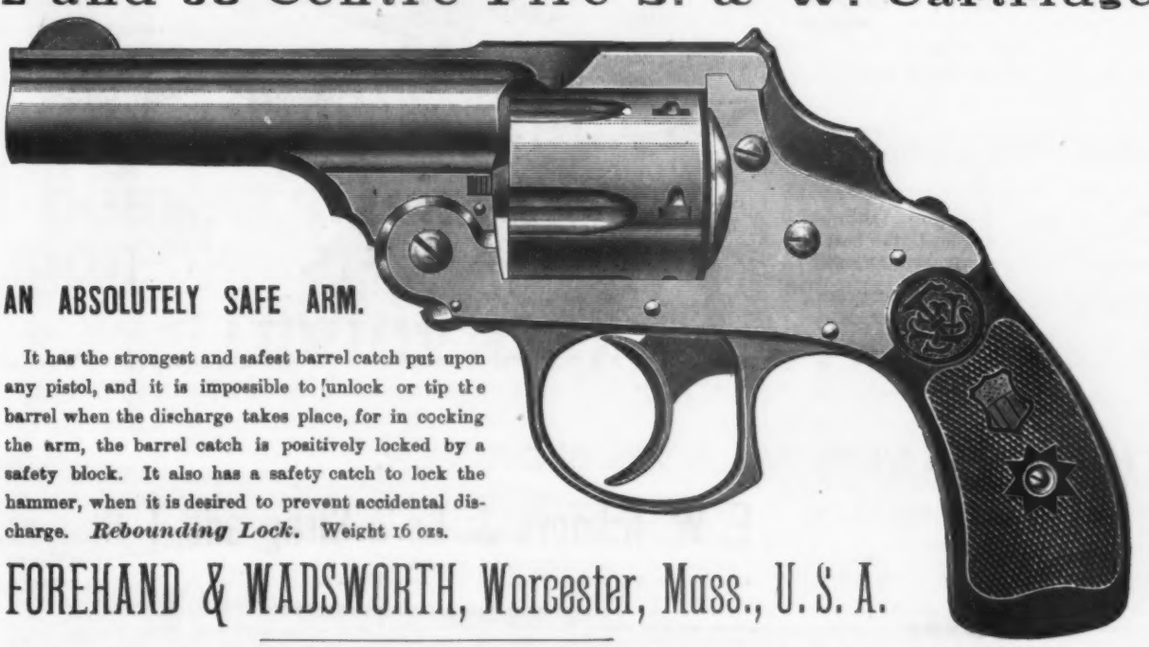

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38 Cal.
Using 38 S. & W. Central Fire Cartridge.

RETAIL PRICE, $10.00.

This Revolver has many improvements not to be found in any other make, including *Improved Automatic Shell Ejector, Rebounding Lock.* Improved method of instantly removing the Cylinder, and the *Safety Attachment* in forward part of Trigger which renders accidental discharges *absolutely impossible. It is the Safest Revolver Made.* Descriptive Circular and Prices to the Trade Furnished on Application.

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Face in one piece of BEST TOOL CAST STEEL, PERFECTLY WELDED, perfectly true, of hardest temper, and never to come off or "settle." Horn of tough *untempered steel*, never to break or bend. *Only Anvil made in United States fully warranted as above.*

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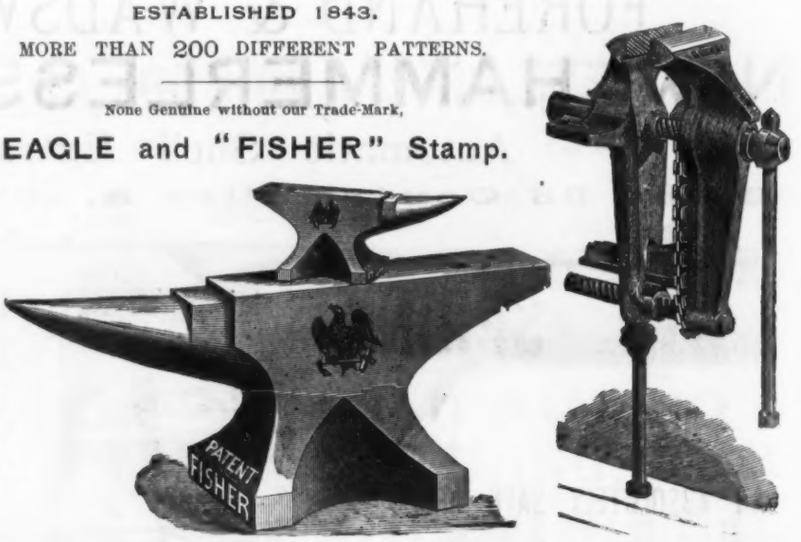

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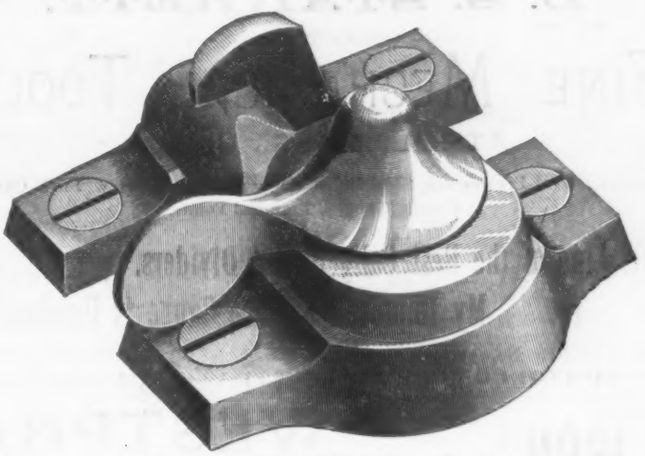

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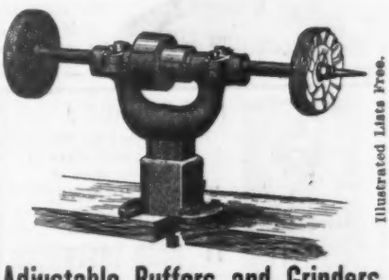

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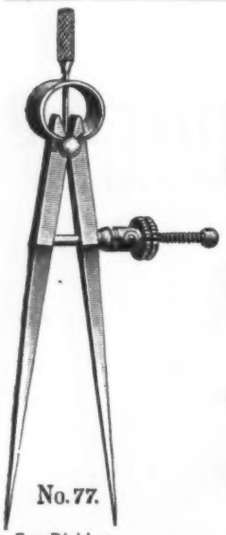

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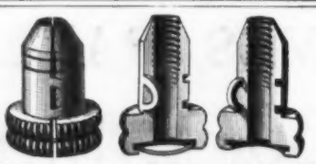

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Squares, Bevel Protractors, Steel Rules, Caliper Squares, Screw Pitch Gauges, Center Gauges, Trammel Points.

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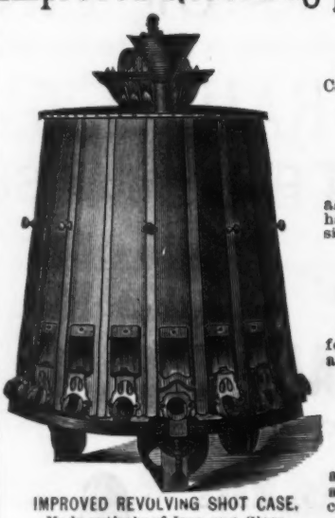
WESTPHAL'S
Improved Revolving Screw, Bolt and Shot Cases



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Made entirely of Iron and Glass.

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Enclosed please find check for Westphal's Revolving Shot Case, with which I am fully satisfied. S. I. FRIES.

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We take pleasure in recommending the Westphal Shot and Screw Cases as the best in the market, and consider no hardware store complete without them. After being in use six years ours are as good as new. WELSH & PARSONS

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Manufacture nearly *ONE THOUSAND* styles, sizes and varieties of

Extra Fine, Warranted Hand and Bench Tools,

for Watch, Clock, Piano and Cabinet Makers, Jewelers, Printers, Electrotypers, Dentists, Amateurs, Carpenters, Builders, Machinists and almost every kind of Mechanic or Artisan.

Bullock's Patent Combined Steel Blade Meat Chopper, Bone Saw and Steak Tenderer.

Just out! Sells at sight! Price per Dozen, net, $4.00. Write for price in gross and great gross lots.

Send Business Card and 4 cents in Stamps for Illustrated Price List.

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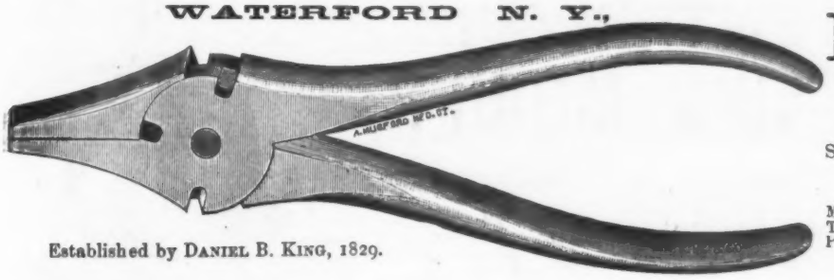

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Specially Adapted for Use on Wire Fence.

Also Manufacturerers of BLACKSMITHS' and MACHINISTS' STOCKS and DIES, PLUG and TAPER TAPS, HAND, NUT and SCREW TAPS, PIPE TAPS and REAMERS.

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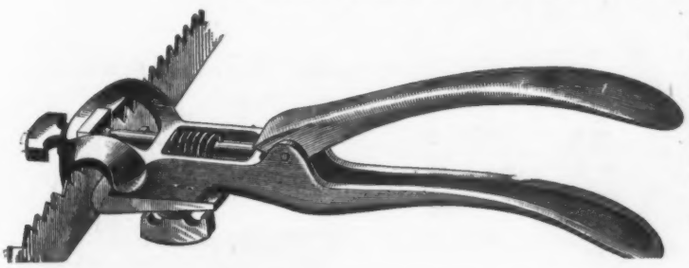


On the application by the administratrix of the estate of the late Asa Farr, for the appointment of a receiver, the New York Supreme Court decided that the business in saw-sets carried on by Mr. Charles Morrill, at 64 College Place, since the death o Mr. Farr, belonged to the Farr estate—the court saying:

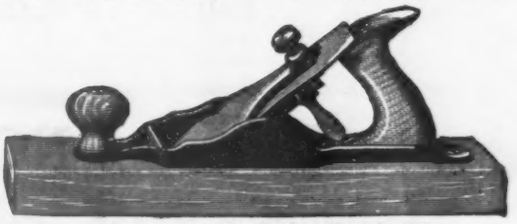
"After Farr's death Morrill could not seize upon the books office and assets of Farr's businessand by an usurpation of owner ship undertake to substitute himself in Farr's place in the busi ness the latter had built up."

Under the instructions of the court I shall continue the manufacture and sale of the Morrill saw-set.

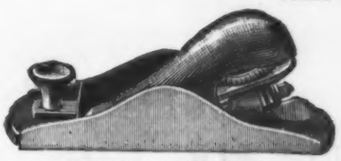
CHAUNCEY S. TRUAX, Receiver in FARR vs. MORRILL,
64 College Place, New York City.

CHAPLIN'S PATENT IRON AND WOOD BOTTOM PLANES.

Jacks and Jointers.



Jack Plane.—Nos. 77, 78.



Nos. 20 and 30 Blocks.

These planes (*with a smooth face*) have been in the market for many years, obtaining a steadily increasing trade as they have become known. We claim for them the utmost simplicity of construction, prompt adjustment and superior beauty of style and finish.

The clamp plate and lever are nickel-plated; the handle is of checkered rubber, which is stronger than any wood handle, and affords an easy, firm grip—also made with nickled iron handle.

Corrugated face.	Smooth face.	
	No. 202, Iron Smooth Plane, 7x1¾ in. Cutter	$3.00
	No. 203, Do., do., 8x1¾ in. do	3.52
	No. 204, Do., do., 9x1¾ in. do	3.35
No. 1205	No. 205, Do., do., 9x2 in. do	3.50
	No. 206 Iron Jack Plane, 12x2	3.85
No. 1207	No. 207, Iron Jack Plane, 15x2⅜	4.25
No. 1208	No. 208, Iron Fore Plane, 18x2¼	5.00
No. 1210	No. 210, Iron Joiner Plane, 22x2⅝	5.75

Smooth Plane, Corrugated Bottom.

This Cut shows the surface of our new Corrugated Iron Planes. The corrugations afford ample air spaces, and reduce the traction and friction to the minimum. Same price as smooth face.

Corrugated face.	Smooth face.	
	No. 211, Iron Joiner Plane, 24x2⅝	$6.75
	With Adjustable Throat.	
	No. 233, Iron Smooth Plane, 8x1¾	3.50
No. 1255	No. 255, Iron Smooth Plane, 9x2	3.75

All of these Planes are nickel-plated finish.

No. 20, Block Plane, Japanned, 6½x1⅝ in. Cutter	1.40
No. 30, Block Plane, Nickel-Plated, 6½x1⅝ Cutter	1.65

OUR NEW WOOD BOTTOM PLANES.

The Clamping Plate and Lever are nickel-plated; the Beechwood has been thoroughly seasoned and is a thicker block than usual, though the Plane is no heavier than those already in the market.

No. 72.	Smooth Plane, 7 x1¾ inch Cutter,	$2.00
" 73.	" " 8 x1¾ " "	2.00
" 74.	" " 8½x2 " "	2.00
" 75.	Handled Smooth Plane, 9x2 in. Cutter,	2.50
" 76.	" " " 10x2⅜ "	2.75
" 77.	Jack Plane, 15x2¼ inch Cutter,	2.35
" 78.	" " 15x2¾ " "	2.60
" 79.	Fore Plane, 18x2¾ inch Cutter,	2.75
" 80.	" " 20x2⅜ " "	2.75
" 81.	Jointer Plane, 22x2⅜ inch Cutter,	3.00
" 82.	" " 24x2¼ " "	3.10
" 83.	" " 26x2⅜ " "	3.25
" 84.	" " 28x2⅜ " "	3.25

The Adjustable Mouth Smooth Plane is a new feature, and meets with a great deal of favor.

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Cold Handle Sad Irons.

Three Irons, One Handle and Stand constitute a set.

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ADVANTAGES:

Simplicity of Construction,

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Durability and

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Can be regulated so that the Grass when cut will be left standing from ¾ to 2 inches in height, as desired.

STRONG, WELL MADE AND CHEAP.

						PRICE.
Width of Cut,	10	inches.	Weight,	30	lbs.,	$13.00.
" "	12	"	"	32	"	15.00.
" "	15	"	"	35	"	17.00.
" "	18	"	"	38	"	21.00.

Diameter of Driving Wheels, 7 inches.

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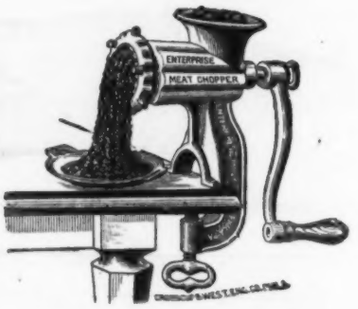

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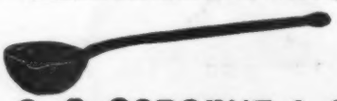

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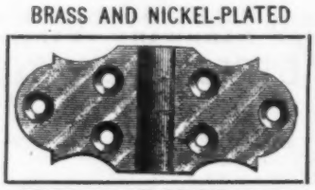

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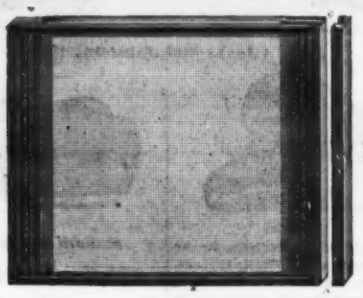

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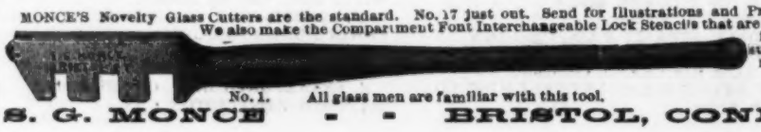

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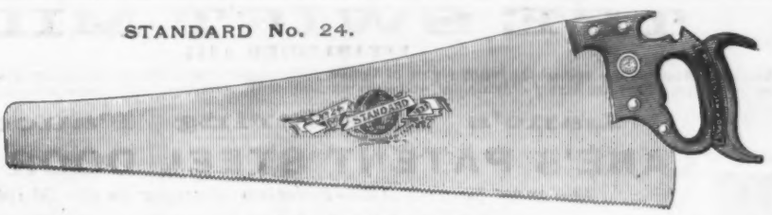

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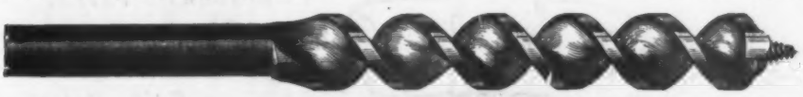

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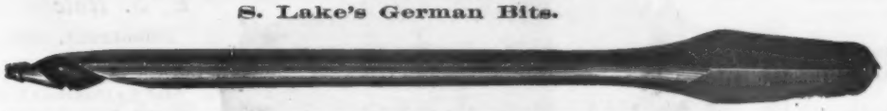

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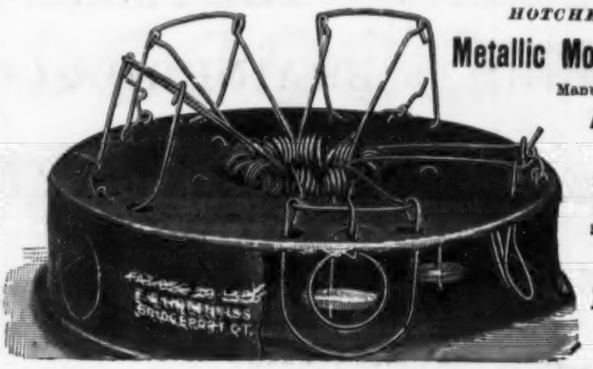

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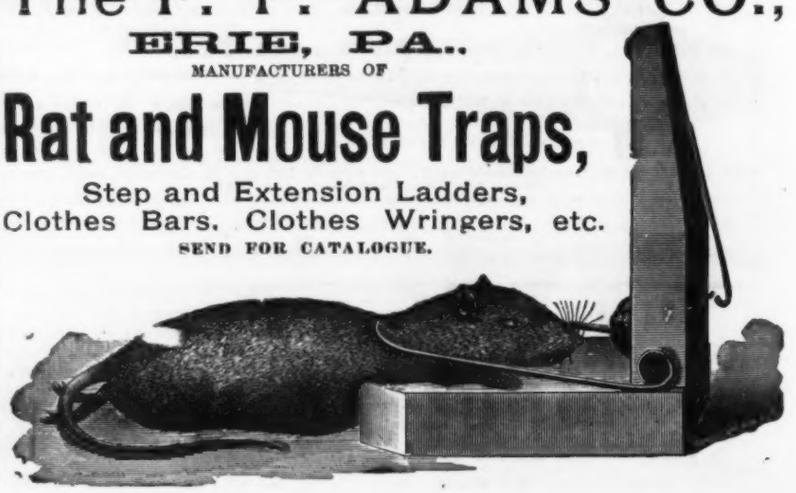

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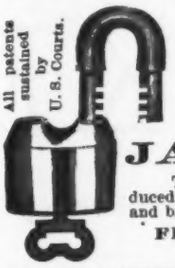

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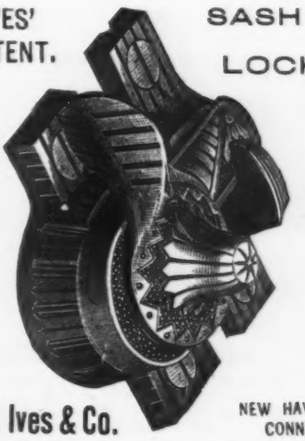

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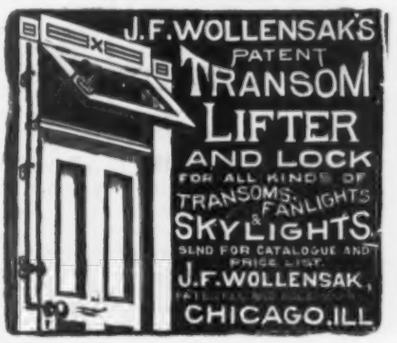

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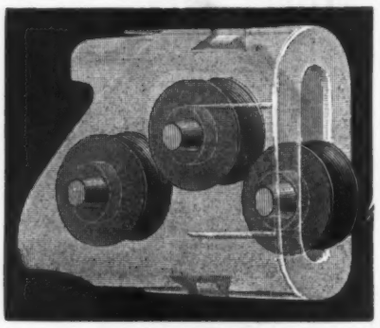

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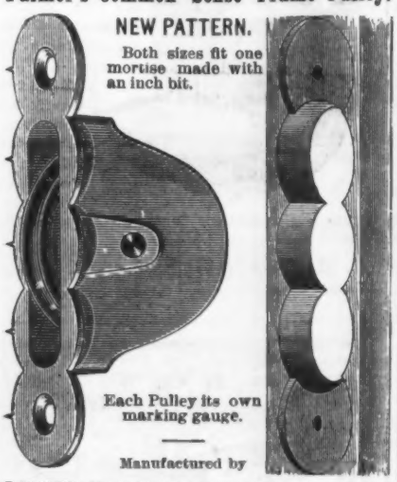

Each Pulley its own marking gauge.

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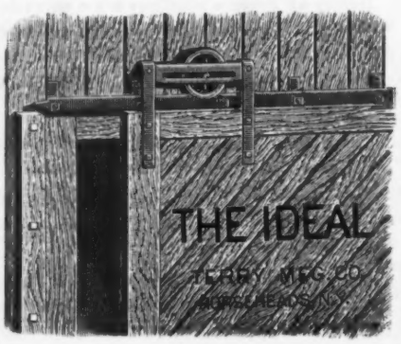

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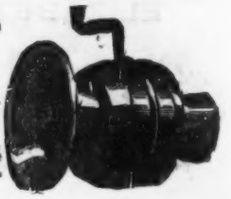

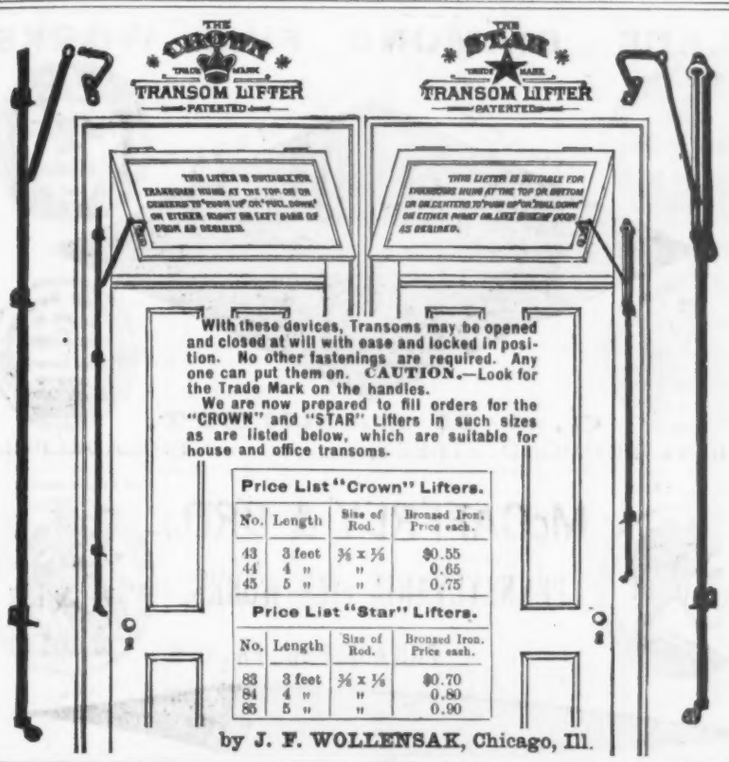

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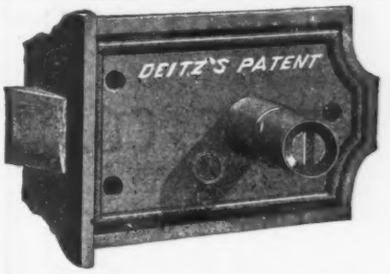

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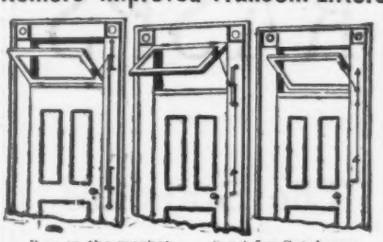

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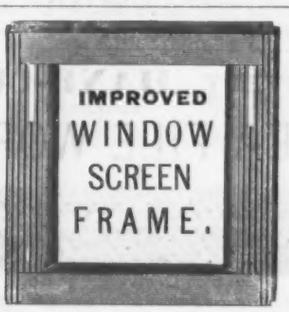

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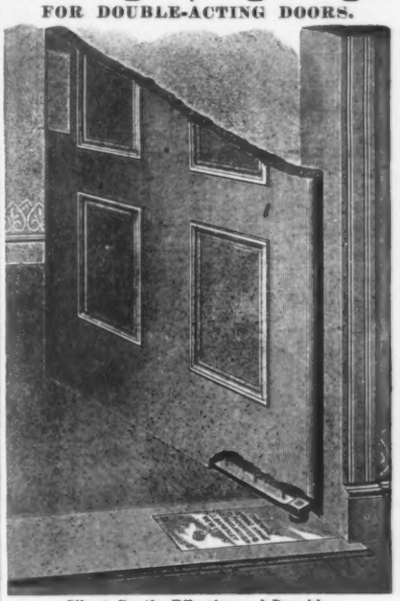

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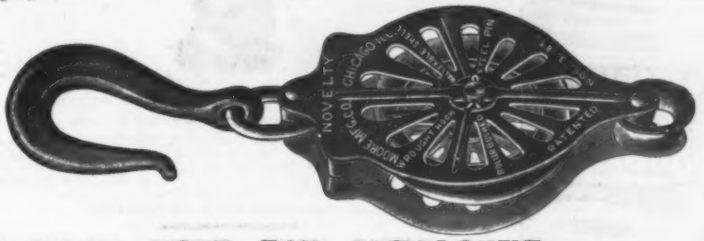

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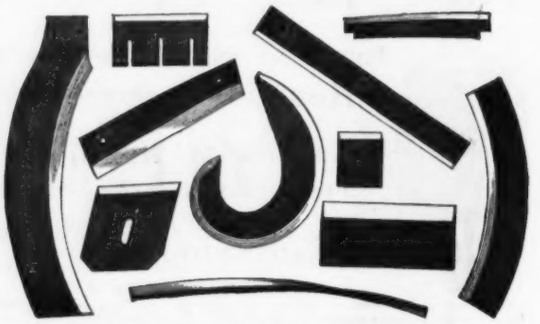

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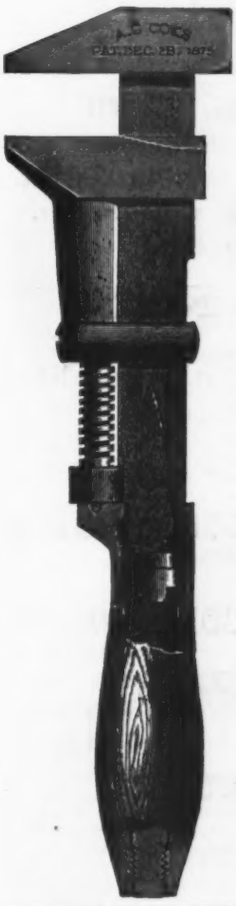

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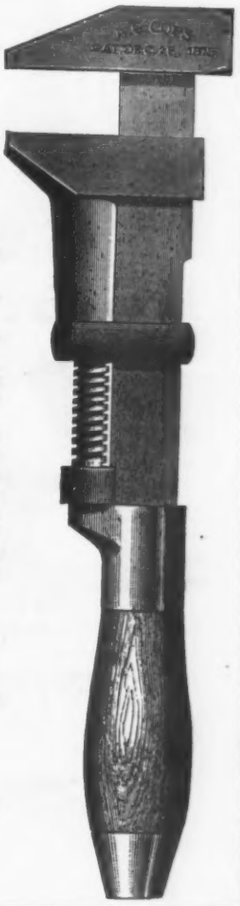

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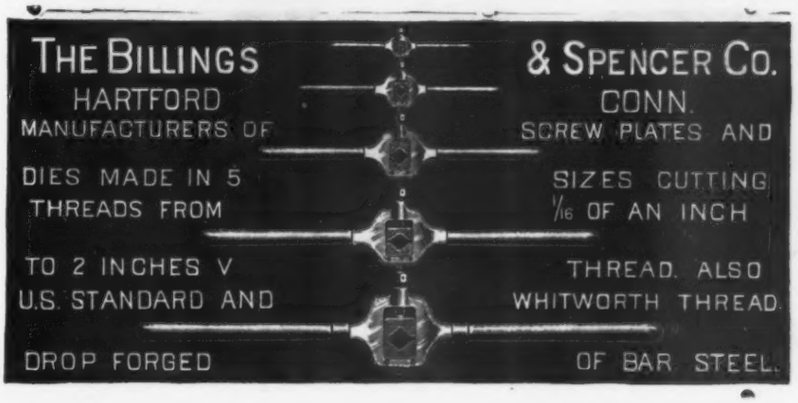
This Wrench can be Furnished with Long Nut or Sleeve.

BEMIS & CALL HARDWARE & TOOL COMPANY, Springfield, Mass.



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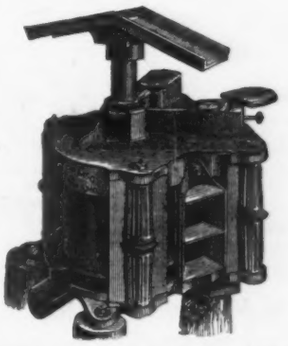

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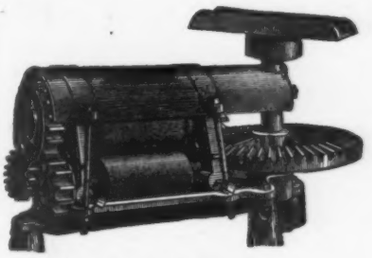

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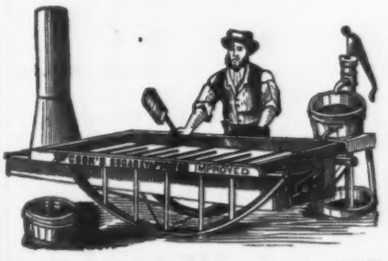

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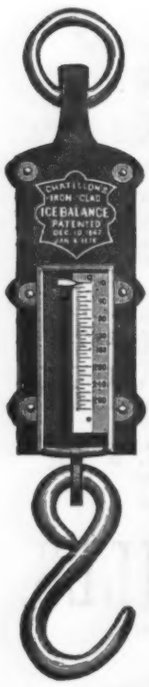

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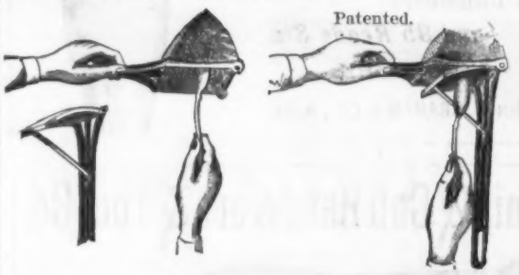

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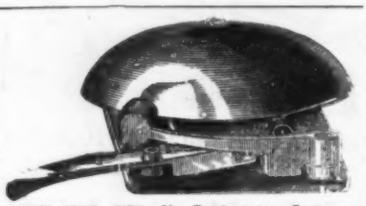

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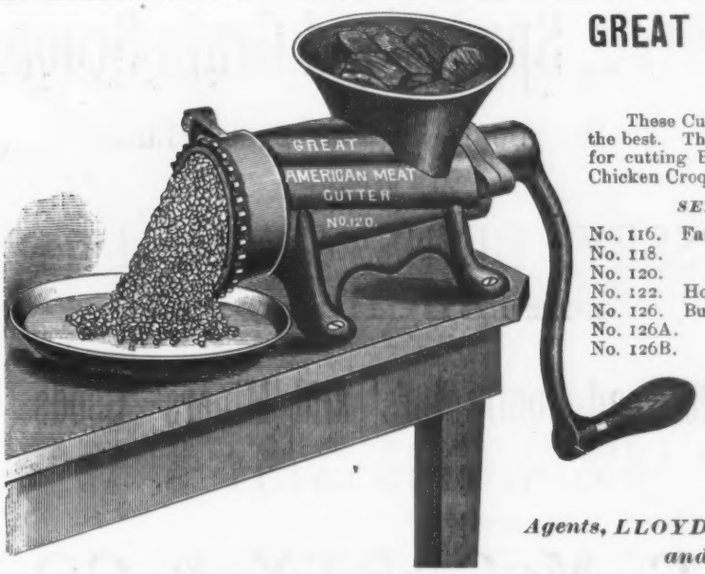

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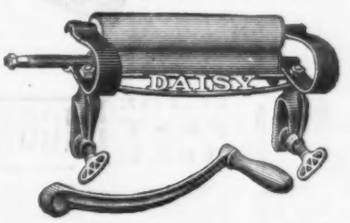

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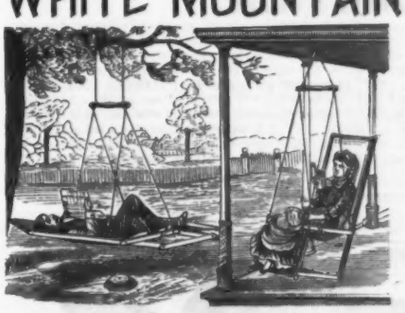

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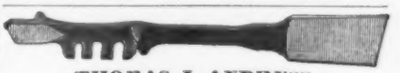

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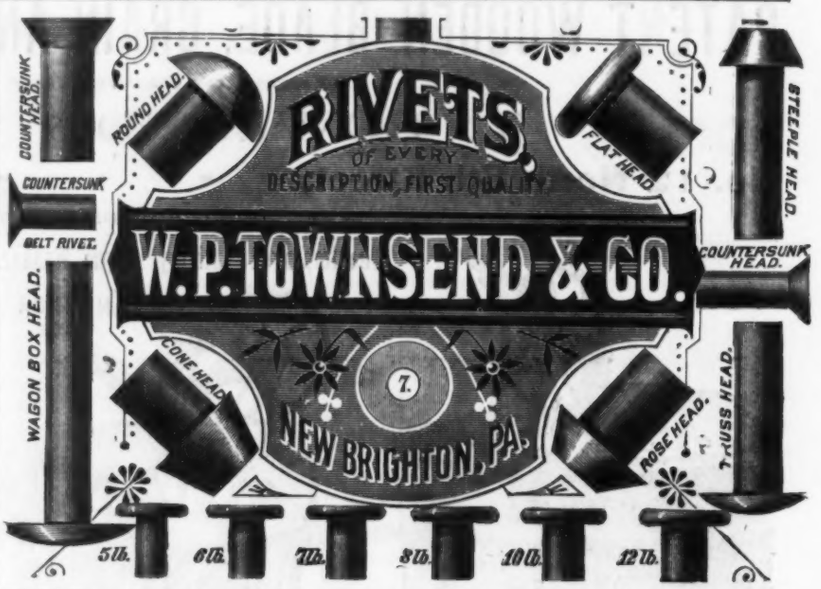

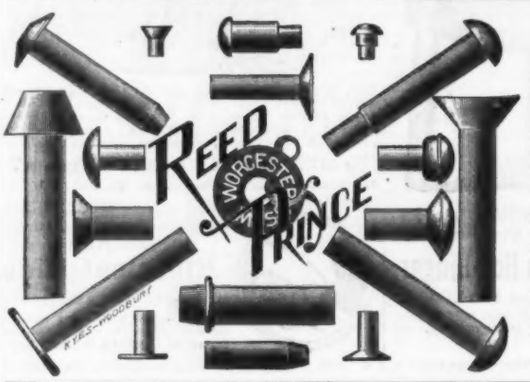

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Lamberson, B., Portland, Or.

Bolt Cutters.
Howard Iron Works, Buffalo, N. Y.
Wells Bros. Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Brass, *Manufacturers of.*
Ansonia Brass & Copper Co., N. Y.
Bridgeport Brass Co., 10 Murray, N. Y.
Davol John & Sons, 100 John, N. Y.
Holmes Booth & Haydens, N. Y.
Plume & Atwood Mfg. Co., N. Y.
Rome Brass and Copper Wks., Rome.
Scoville Mfg. Co., 421 Broome, N. Y.
Waterbury Brass Co., 396 B'way, N. Y

Brass Butt Hinges.
Tiebout W. & J., N. Y.

Brass Founders.
Deoxidized Metal Co., Bridgeport.
Reeves Paul S. Philadelphia
Stewart Mattson Mfg. Co., Phila.

Brass Goods.
Brass Goods Mfg. Co., N. Y.

Bridge Builders.
Berlin Iron Bridge Co., East Berlin, Ct.

Butcher and Shoe Knives. *Manufacturers of.*
Goodell Co., Antrim, N. H.
Wilson John, Sheffield, England.

Butts and Hinges.
Sabin Machine Co., Montpelier, Vt.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.

Calipers and Dividers.
J. Stevens Arms and Tool Co., Chicopee Falls, Mass
Richardson C. E., Athol, Mass.
Starrett L. S., Athol, Mass.

Cane Mills.
Oyler, Geo. K., St. Louis, Mo.

Can Makers' Tools and Machines.
Crosby G. A. & Co., Chicago.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Car Axles.
Roberts A. & P. & Co., Phila.

Car Wheels.
Fowler Steel Car Wheel Co, Chicago, Ill.
Whitney, A. & Sons, Philadelphia.

Carriage Hardware. *Makers of.*
E. D. Clapp Mfg. Co., Auburn, N. Y.
Scranton Forging Co., Scranton, Pa.
Smith H. D. & Co., Plantsville, Conn.

Castings, Iron and Steel.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
S. Cheney & Son, Manlius, N. Y.
Chester Steel Casting Co., Phila.
Cleveland Foundry Co., Cleveland, O.
Eureka Cast Steel Co., Chester, Pa.
Flagg Stanley G. & Co., Phila.
Haight & Clark Albany, N. Y.
Hammer & Co., Branford Conn.
Haven, Jas. L. Co., Cincinnati, O.
I. & Spencer & Sons, Hartford, Conn.
Johnson I. G. & Co., Spuyten Duyvil.
Morris, Tasker & Co., 224 South Third Street Phila
Myers, Osborn & Co., Cleveland, O.
New Howe Mfg. Co., Bridgeport.
North Brothers Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Palmers & De Mooy, Cleveland, O.
Pittsburgh Steel Casting Co. Pittsburgh.
Pratt & Letchworth, Buffalo, N. Y.
Sessions Foundry Co., Bristol, Conn.
Sharon Steel Castings Co., Sharon, Pa.
Shepard Hdw. Co., Buffalo, N. Y.
Springfield Fdry. Co., Springfield.
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry Syracuse.
Syracuse Mall. Iron Wks. Syracuse.
Taylor & Boggis Fdry Co., Cleveland.
Vulcan Iron Works, New Britain, Conn.
Thos. D. West Fdry Co., Cleveland, Ohio.
Wetherill Robt. & Co., Chester Pa.

Cement.
Johnson & Wilson, 91 Liberty, N. Y.

Chains.
Bradlee & Co., Philadelphia.
Wm. H. Haskell Co., Pawtucket, R. I.

Chemicals.
Kimer & Amend, 205 Third av., N. Y.

Chemical Iron Works.
Gray Sperry Foundry and Boiler Co., Philadelphia, Pa.

Chisels, *Manufacturer of.*
Buck Bros., Millbury Mass.
Jennings C. E., 79 Reade N. Y.

Chucks.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co. 103 Chambers, N. Y.
D. S. Whiton Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.

Clothes Dryers.
Empire Wringer Co., Auburn, N. Y

Coal.
Borden & Lovell, 70 West N. Y.
Pardee A. & Co., 111 Broadway, N. Y.

Coat and Hat Hooks.
Hamilton & Russell Mfg., Co., Worcester, Mass.

Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia.
Lane Bros., Poughkeepsie, N. Y.

Coke.
Connellsville Coke & Iron Co., Phila.
Schoonmaker J. M., Pittsburgh.

Commission Merchants, Iron, Steel, &c.
Howard Childs & Co. Pittsburgh.
Knapp & Hague, 52 Fulton, N. Y.

Copper.
New Haven Copper Co., Pearl, N. Y.
Rome Brass and Copper Works, Rome, N. Y.

Cordage.
Elizabethport Steam Cordage Co., 46 South N. Y.
Tolman, J. P. & Co., Boston, Mass.

Corrugated Iron.
Berlin Iron Bridge Co., E. Berlin, Ct.
Cincinnati Corrugating Co. Cinn., O.
Knisely & Miller Bros., Chicago, Ill
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.
Sagendorph Iron Roofing and Corrugating Co., Cincinnati Ohio.
Standard Iron Co., Bridgeport, Ohio.

Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 8th N. Y.
Shields & Brown Co., Chicago, Ill.

Cranes.
Sellers, Wm. & Co., Philadelphia, Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cutlery, *Importers of.*
Clatworthy, F. & W., N. Y
Dome, Stoddard & Kendall, Boston, Mass.
Field, Alfred & Co., N. Y.
Gurney, F. B., 116 Chambers St., N. Y.

Cutlery, *Manufacturers of.*
Bingham W. & Co., Cleveland, Ohio.
Goodell Co., Antrim, N. H.
Healy, C. J. & Co., 26 Warren, New York.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Dampers
Shepard Hardware Co., Buffalo, N. Y.

Daubers
Peabody & Parks, Troy, N. Y.

Door Checks.
Bardsley, J., 59 Elm St., New York.

Door Hangers, House and Barn.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. Co., Chicago Ill.
Stearns, S. C. & Co. Syracuse, N. Y.
Terry Mfg. Co., Horseheads, N. Y.

Door Knobs.
Boston Knob Co., Boston, Mass.

Door Springs.
Paine, A. W., Peaboy, Mass.

Drilling Machines.
Dallett Thos. H. & Co., Philadelphia
Dwight Slate Machine Co., Hartford Conn
Illinois Iron & Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Sigourney Tool Co., Hartford, Conn.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Universal Radial Drill Co., Cinn.

Drills, Upright.
Currier & Snyder, Worcester, Mass.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Billings & Spencer Co., Hartford, Ct.
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Philadelphia Drop Forge Co, Phila.
Scranton Forging Co., Scranton Pa.
Williams, J. H. & Co., Brooklyn, N. Y.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Beecher & Peck, New Haven, Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Edward Storm Spring Co. Poughkeepsie, N. Y.

Edge Tool Makers.
Black, H. B & Co., Chester, Pa.

Edge Tools, *Makers of.*
White, L. & I. J., Buffalo, N. Y.

Electrical Supplies.
Wollensak, J. F., Chicago, Ill.

Electric Bells.
Ostrander, W. R. & Co., New York.

Electric Lighting.
The Brush Electric Co., Cleveland, O.
Waterhouse Electric & Mfg. Co. Hartford, Conn.

Electric Dynamo Machines.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct

Elevators, *Makers of.*
Morse, Williams & Co. Phila., Pa.
Stokes & Parrish Elevator Co., Philadelphia, Pa.

Emery Paper, Cloth, &c.
Walpole Emery Mills, S. Walpole, Mass

Emery Wheels.
New York Belting and Packing Co. 15 Park Row, N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Springfield Glue and Emery Wheel Co., Springfield, Mass.
Sterling Emery Wheel Co., 22 Warren Street, N. Y.
The Tanite Co., Stroudburg, Pa.
Waltham Emery Wheel Co. Waltham, Mass.

Engineering Implements & Supplies.
Queen & Co., Philadelphia, Pa.

Engineers.
Gordon Strobel & Laureau, Phila.

Engineers and Contractors.
Laughlin, A. & Co. Cleveland, O.
Lean & Blair Pittsburgh Pa
McClure & Sbuler, Pittsburgh, Pa.
McKenna, Ryan & Sons, Pittsburgh.
Roberts, Frank C., Philadelphia, Pa.
Robinson, Wm. H., Philada, Pa.
M. V. Smith, Pittsburgh Pa
Stein & Schwarz Philadelphia, Pa.
Swindell Construction Co. Pittsburgh, Pa.
Waite & Van Harlingen, Phila. Pa.

Engines, Gas.
Clerk Gas Engine Co., Phila., Pa.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam. *Makers of.*
Climax Mfg. Co, Corry Pa.
Farquhar, A. B. & Son, York, Pa.
Harrisburg Car Mfg. Co, Harrisburg Pa.
Leffel Jas. & Co., Springfield, O.
Newell Universal Mill Co., 10 Barclay N. Y.
Payne B. W. & Sons, 49 Dey, N. Y
Russell & Co, Massillon, Ohio
Norwalk Iron Works Co. S Norwalk
Todd Wm. & Co., Youngstown, O.
Valley Iron Works, Williamsport, Pa
Wetherill Robt. & Co., Chester, Pa.

Engravers and Printers.
Conant, J. S. & Co., Boston, Mass.
Kyes & Woodbury, Worcester, Mass.

Evaporators.
Oyler, Geo. K., St. Louis, Mo.

Exhaust Pipe Condensing Head.
Aller, Amos, 109 Liberty, N. Y.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn, N. Y.

Faucets, Self-Measuring.
Enterprise Mfg. Co., Philada., Pa.

Faucets, *Makers of.*
John Sommer's Son, Newark, N. J.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn

Fences, Wrought Iron.
Champion Iron Fence Co., Kenton, O.

Files, *Importers of.*
Montgomery & Co., 105 Fulton, N. Y.
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of.*
Barnett, G. & H., 41 & 43 Richmond, Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey & Bro., Philadelphia
Nicholson File Co., Providence, R. I.
Paul Chas. B., Williamsburg, N. Y.

Fire Brick, *Makers of.*
Birmingham Fire Brick Works, Birmingham, Ala.
Borgner & O'Brien, Philadelphia, Pa
Gardner James Cumberland, Md.
Haws, A. J. & Sons, Johnstown, Pa.
Kreischer B. & Sons, foot E. Houston, N. Y.
Maurer H. & Son, 420 E. 23d, N. Y.
Newton & Co., Albany, N. Y.
Ostrander James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine M. D. & Bro., Woodbridge.

Fishing Tackle.
Field, J. B. & Co., Detroit, Mich.

Flint Garnet Paper.
Upton Geo., Boston, Mass.

Flour Sifters.
Fred. J. Meyers Mfg. Co., Covington, Ky.

(See Alphabetical Index, Page 82.)

Foreign Iron Merchants.
Jno G. Rollins, London England.

Forges, Portable, &c.
Bradley & Co. Syracuse, N. Y.
Brown & Patterson Brooklyn, N. Y.
Bullock T. H., Cleveland O.
Buffalo Forge Co Buffalo, N. Y.
Champion Blower and Forge Co. Lancaster Pa
Sturtevant B. F. Boston Mass.

Forgings, Iron and Steel.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Bicke s Dickey Philadelphia, Pa.
Miller Forge Co., Pittsburgh, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson J W & Co. Phila.
S. Obermayer Foundry Supply Mfg Co., Cincinnati, O.

Foundry Riddles.
Estey W S., 71 Fulton, N. Y.

Foundry Supplies.
Detroit Foundry Equipment Co., Detroit Mich.
S. Obermayer, Foundry Supply Mfg Co., Cincinnati, O.
Paxson J W. & Co., Philadelphia.

Friction Clutches.
Hill Clutch Works, Cleveland, O.
Moore & White Co., Philadelphia, Pa.

Friction Pulleys.
Sandy Hill Iron and Brass Works, Sandy Hill, N. Y.

Furnace Hoists.
Stokes & Parrish Machine Co., Phila.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila. Pa.

Gears.
Grant, Geo. B., Boston, Mass.

Gear Cutters.
Grant, Geo. B., Boston, Mass.
D. S. Whitton Mach. Co., New London Conn

Glass Cutters.
Andrews, Thos. J., Philadelphia, Pa.
Monce, S. G., Bristol Conn.

Glue.
Le Page Liquid Glue and Cement Co., Gloucester Mass.
Russia Cement Co., Gloucester, Mass.
Upton, Geo., Boston, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Gunpowder. *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hammers, Steam.
Bradley & Co., Syracuse, N. Y.

Hammock Chairs.
Alford & Berkele Co, 77 Chambers St., N. Y.

Hand Force Pumps.
Union Mfg. Co., 103 Chambers, N. Y.

Hardware Comm'n Merchants.
Doscher Martin, 48 Chambers, N. Y.
Field Alfred & Co., N. Y.
Jacobus, W. H. & Co., N. Y.

Hardware Manufacture
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg Co. 103 Chambers, N. Y.
Vaughan & Bushnell Mfg. Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H., 115 Chambers, N. Y.

Hardware Shelf Boxes.
Green S. H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.

Hardware Specialties.
Acme Shear Co. Bridgeport, Conn.
Am. Bit Brace Co., Buffalo, N. Y.
Enterprise Mfg Co., Philadelphia, Pa.
Gregor Tweed & Co., N. Y.
Paine, Diehl & Co., Philadelphia, Pa.
Rex A. C. & Co., Philadelphia, Pa
Saxton E. R., Buffalo, N. Y.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Carriers.
Myers F. E. & Bro., Ashland, O.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hinges.
Union Mfg. Co. 103 Chambers, N. Y.

Hog Ringers.
Chambers, Bering & Quinlan Co., Decatur.

Hoisting Machines.
Box Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington S. Son & Co. Phila.
McCoy & Sanders, 26 Warren, N. Y.
Morse Williams & Co. Phila.
Sellers Wm. & Co. Phila. and N. Y.
Teal Hoist Co., Philadelphia.

Hollow Ware.
N. Y. Stamping Co., Brooklyn, N. Y.

Horse Nails. *Makers of.*
National Horse Nail Co. Vergennes.

Horse Shoes. *Makers of*
Phoenix Horse Shoe Co., Poughkeepsie N. Y
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose Clamps.
Tuers Water Meter Co. Syracuse, N. Y.

Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa.

Hydrants, &c.
McLean John. N. Y.

Hydraulic Jacks.
Dudgeon Richard, N. Y.
Watson & Stillman, 204 E. 43d. N. Y.

Ice Cream Freezers.
Shepard Hdw. Co. Buffalo, N. Y.

Ice Crushing Machines.
Abendroth, G. I., 28 Cliff st., N. Y.

Indurated Fibre Ware
Union Indurated Fibre Co., N. Y.

Injectors.
Allen Amos, 109 Liberty, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron. *Manufacturers' Agents.*
Cox Justice Jr., & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Hoffman J. W. & Co. Philadelphia.
Levis Henry & Co., Philadelphia.

Iron. *Manufacturers of.*
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy N. Y.
Curtins & Co., Roland P. O., Center Co., Pa.
Long & Co., Pittsburgh, Pa.
Mahoning Valley Iron Co., Youngstown, O.
Montour Iron & Steel Co., Danville.
Moorhead-McCleane Co., Pittsburgh, Pa
Passaic Rolling Mill Co., Paterson
Phoenix Iron Co., 410 Walnut, Phila.
Pottstown Iron Co, Pottstown, Pa.
Troy Steel and Iron Co., Troy, N. Y.
Whitney A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel - wedish.
Lewander & Co Boston, Mass.
Lundberg Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philp C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Ettinger Edward J., Philadelphia, Pa.
Welbaum W. H. & Co., Philadelphia, Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia.
Horan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia.
Mohr J. J., 430 Walnut, Phila
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Welbaum, W. H. & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe Philadelphia.
Cooper Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila. Pa,
Hart Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co. Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvis & Co. Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 100 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co. 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig, *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet. *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O.

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Mill ns Falls Co., 91 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co. Newburs N. Y
Enterprise Mfg. Co., Philadelphia, Pa.
Foos Mfg Co Springfield, O

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. P., Athol, Mass.

Lightning Rods.
Munson Lightning Conductor Co., Indianapolis, Ind.

Locks and Knobs. *Manufacturers of*
Dietz A. E., 97 Chambers N. Y.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co. Bridgeport.
Quackenbush Abram, New York.
Yale & Towne Mfg. Co., Stamford

Machinery.
Adt John & Son, New Haven, Conn.
Barnes W. F. & John Rockford, Ill
Birmingham Iron Foundry, Birmingham, Conn
Bigelow C. E., 45 Dey, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin 12 Broadway, N. Y.
Bullard E. P., 62 College Place, N. Y.
Curtis & Curtis Bridgeport, Conn.
Cruikshank D. B. Providence, R. I.
Deering Wm & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray, R. J. & Co., 131st & 4th Ave., N. Y
Gray's Ferry F'd'y & Boiler Co., Phila. Pa.
Hendey Machine Co. Torrington Ct
Johnson, Israel H. Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J
New York Mach'y Depot, N. Y.
Nicholson & Waterman, Providence, R. I.
Pedrick & Ayer, Philadelphia, Pa.
Pryibil P., 467 W. 40th N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian May & Co., Cincinnati, O.
Sellers Wm. & Co. Phila.
Snell Henry L., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. F'd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. & Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y. Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Meat Choppers.
Enterprise Mfg Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N. Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard P. E., Scranton, Pa.
Leonard, P. F., Scranton, Pa.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co., Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Wash'ton, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y.

Norway Shapes. *Rollers of.*
Naylor & Co., 99 John, N. Y.
Bowland William & Harvey, Frankford Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester.
Wilson J. Fred, Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Bammer & Co., Branford, Conn

Oil Stones.
A. F. Pike Mfg. Co., Pike Station, N. H.
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardner, Mass.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-Spence Co. 419 8th, N. Y.
Lombaert Mfg. Co., Phila
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Fraim, E. T., Lancaster, Pa.

Pails.
Brower, John, New York.

Paint.
Cleveland Iron Ore and Paint Co Cleveland, O.
Felton Sau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington D. C.
Howson & Howson Phila. & Wash'gton.
Stocking E. G., Washington, D. C.

Perforated Metal.
Throop Perforating Co., Buffalo, N. Y.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Pig Iron.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of.*
Donaldson Iron Co. Emaus, Pa.
Fox John, 160 Broadway, N. Y.
Morris, Tasker & Co., 234 South Third-street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co, St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.
Tower & Lyon, 95 Chambers, N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N. Y

Post Hole Diggers.
Lagonda Mfg. Co., Springfield, O.

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Power Hammers.
Belden R. A. & Co., Danbury, Conn.
Bradley & Co., Syracuse, N. Y.
Diehl & Eisenhardt, Philadelphia
Duncan, W. P. & Co., Bellafonte, Pa.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Power Transmission Machinery.
Hill Clutch Works, Cleveland, O.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa.

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown, Conn.

Presses, Power. *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Allen Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Gould's Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Keystone Engine and Machine Wks., Phila., Pa
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Easthampton, Mass.

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Pumps, Force.
Myers F. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y.

Pumps. Makers of.
Clark Bros., Belmont, N. Y.
Columbiana Pump & Machine Co.
Douglas W & S Middletown, Conn.
Gould & Mfg Co., 60 Barclay, N. Y.
Silver & Deming Mfg.Co., Salem,O.
Union Mfg. Co., 103 Chambers, N. Y.

Punching and Shearing Presses.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown Pa.
Joliet Steel Co. 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y.
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. S. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Bowles Mfg. Co. Bridgeport, Ct.

Razors.
Dame, Stoddard & Kendall, Boston, Mass.
J. R. Torrey Razor Co., Worcester Mass.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia,

Refrigerator Trimmings.
Brainard & Co., 97 Chambers St., N. Y.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Disosway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rock Drills.
Clayton Air Compressor Works, Brooklyn, N. Y., and Dey, N. Y.

Rolling Mill Machinery.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Iron and Steel.
Garrison A. & Co., Pittsburgh, Pa
Seaman, Sleeth & Black, Pittsburgh.

Rules, Manufacturers of.
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Cords and Chains.
Morton Thos., 65 Elizabeth, N. Y.
Smith & Egge Mfg. Co. Bridgeport.
Whitney, D. J., 47 Warren, N. Y.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Claflin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers St., New York.
Ives H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co, Troy, N. Y.

Saws, Makers of.
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Truax, Chauncey S., 64 College Place, N. Y.

Scales, Manufacturers of.
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons, Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Kiehle Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Decatur Coffin Co., Decatur, Ill.
Ellison Bow Mfg. Co., Plantsville, Conn.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, Makers of.
Wm. H. Haskell Co., Pawtucket.
Miles F. S. 205 Quarry Philadelphia
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls, N. Y

Scythe Stones and Whetstones
A. F. Pike Mfg. Co., Pike Station, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, Makers of.
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 28 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Schollhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.
Rowlands sons, T., Philadelphia, Pa.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown, Conn.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen, 105 Walker, N. Y.

Sporting Goods.
Field, J. B. & Co., Detroit, Mich.

Spelter.
Manning & Squier, 111 Liberty, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.

Spring Hinges.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Stops.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., Makers of.
Dienelt & Eisenhardt, Philadelphia.
Dudgeon Richard, 24 Columbia, N. Y.
Duncan W. P. & Co., Bellefonte Pa.

Steam Heating.
Broomell & Sangs, York, Pa

Steam Pumps, &c., Manufacturers.
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
McGowan John H. & Co., Cincinnati.
Norwalk Iron Wks. Co., 80, Norwalk.

Steam Traps.
Aller Amos, 109 Liberty, N. Y.

Steel Figures and Alphabets.
Stutzman J. M., 181 William, N. Y.

Steel Importers.
Abbott Jere & Co., N. Y. & Boston.
Hobson Francis & Son, 97 John, N. Y.
Jessop Wm. & Sons, Sheffield, England or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 28 West, N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones S. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Frankford Steel Co., Philadelphia
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John, N. Y.
Jones, S. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss F. W., 83 John, N. Y.
Naylor & Co., 99 John, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N. Y.
Wardlow S. & C., Sheffield, Eng.
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, Manufacturers' Agents.
Beaver-Webb, J., 145 Broadway.
Dickas & Dickey, Philadelphia, Pa.

Steel Nails
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs, Manufacturers
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N. Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng. 91 John, N. Y.
Lang John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops
J. R. Torrey & Co., Worcester, Mass.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Trurant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W., Springfield, Mass.
Ellrich Hdw. Mfg. Co., Plantsville, Ct.
Hogue, J. H & Co., Chicopee, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Campaign.
Sheparo, Sidney & Co., Buffalo, N. Y.

Transom Lifters.
Reiher F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks, Manufacturers of.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Riehlé Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co. 19 Murray, N. Y.

Tubes, Steel.
Lang John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, Makers of.
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Lang John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 23 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers.
Mason Iron Co., Philadelphia, Pa.

Washing Machines.
Wayne, Anthony, Mfg.Co., Fort Wayne, Ind.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York.

Water Motors.
Tuerk Water Meter Co., Syracuse, N. Y

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl N. Y.
Lewis John T. & Bros., Phil.
Salem Lead Co., Salem, Mass.

Wheels.
I. A. Weston & Co., Syracuse, N. Y.

Whiffletree Hooks,
Head's Iron Foundry, Utica, N. Y.

Window Cleaners.
Bosley, D. W. & Co., Chicago.

Window Cord, Makers of.
Tolman, J. P. & Co., Boston, Mass.

Window Screen Frames.
Boughton, J. W., Philadelphia, Pa.

Window Screens.
Boughton, J. W., Philadelphia, Pa.
Darby, Edw. & Sons, Philada., Pa.
Queen Anne Screen Co., Burlington Vt.

Wire, Manufacturers of.
Cary & Moen, 234 W, 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren St., N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., L'd, Pittsburgh, Pa
Howard & Morse, 45 Fulton, N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co., Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg Co, Worcester.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass.
Darby Edward & Sons, Philadelphia.
Estey W. S., 71 Fulton, N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse, 45 Fulton, N. Y.

Wire Goods, Manufacturers of.
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville
Howard & Morse, 45 Fulton, N. Y.
Knapp & Hague, New York.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
Adt John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Sweetser, W. A., Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Birmingham Wire Nail Co., Birmingham Ct
Dunbar, Hobart & Co., 39 Warren, N. Y
Field A. & Sons, Taunton, Mass.
Hartman Steel Co. Ltd., Pittsburgh Pa.
Phillips E. & Sons, South Hanover.
Phillips Townsend & Co., Phil., Pa
Pittsburgh Wire Nail Co., Pittsburgh Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
Wire Goods Co., Worcester.
Trufant W. E., Whitman, Mass.
Whitney A. R. & Co., New York City.

Wire Rods, Steel.
Whitney A. R. & Co., N. Y.

Wire Rope, Iron and Steel. Makers.
Broderick & Bascom, St. Louis, Mo.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St Louis, Mo.
Upson, Walton & Co., Cleveland, O.
Washburn & Moen Mfg. Co., Worcester, Mass.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Fall N. Y.

Wrenches, Manufacturers of.
Bemis & Call Hardware & Tool Co Springfield, Mass.
Billings Spencer & Co., Hartford Conn.
Coes Wrench Co, Worcester, Mass.
Utility Wrench Co, N. Y
Williams, J. H., Brooklyn, N. Y.

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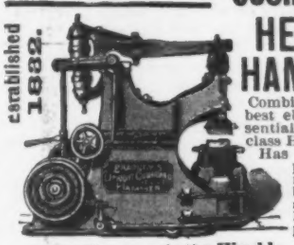

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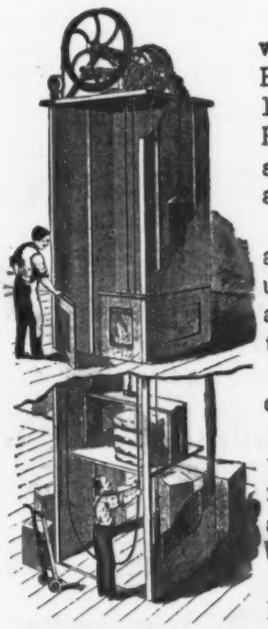

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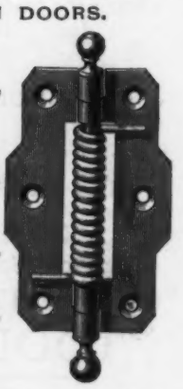

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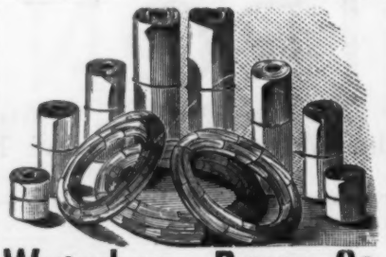

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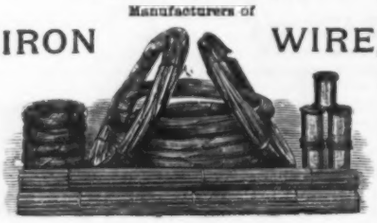

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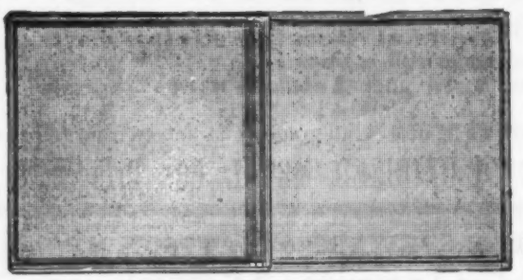

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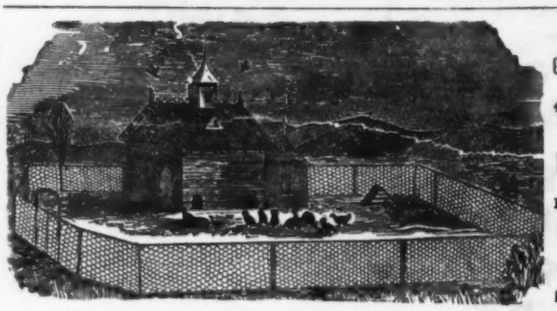

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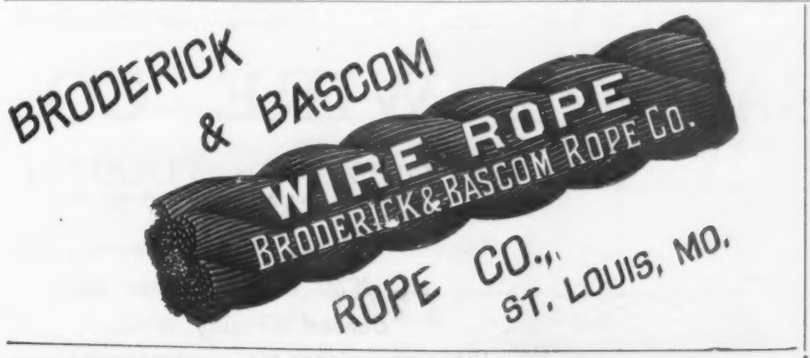

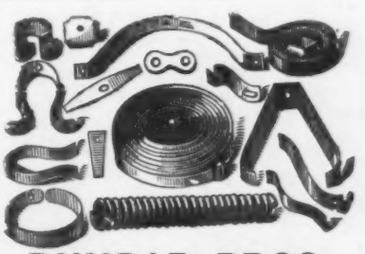

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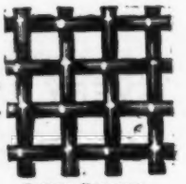

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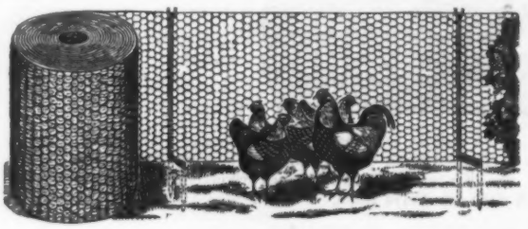

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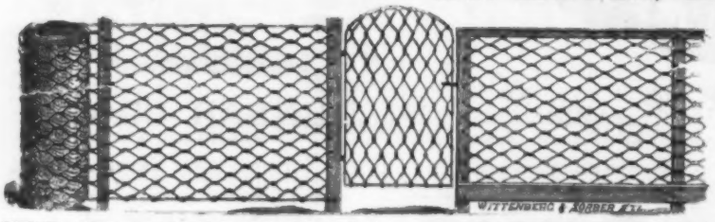

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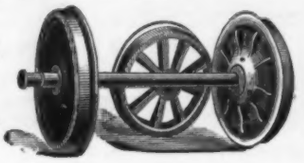

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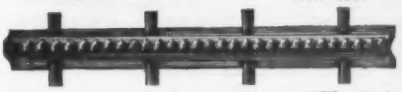

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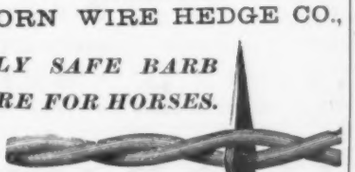

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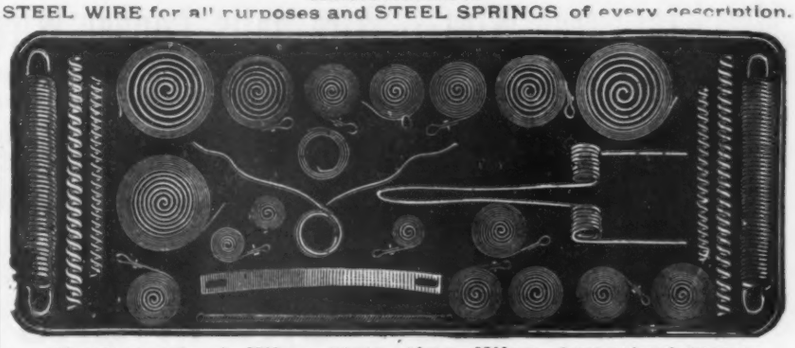

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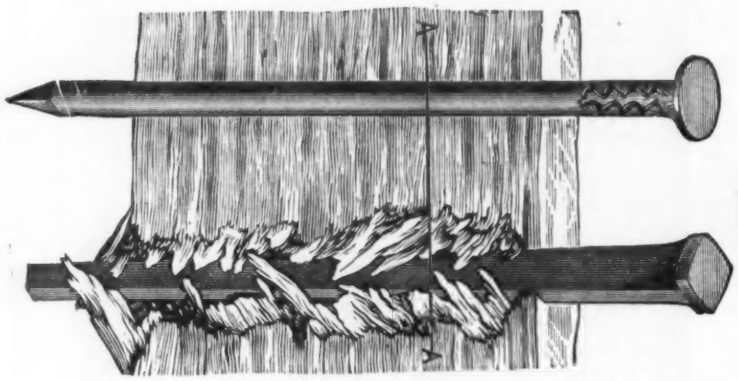

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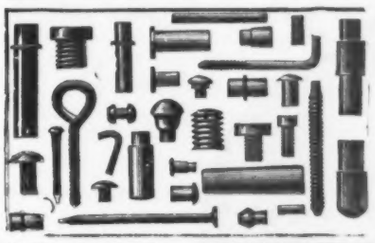

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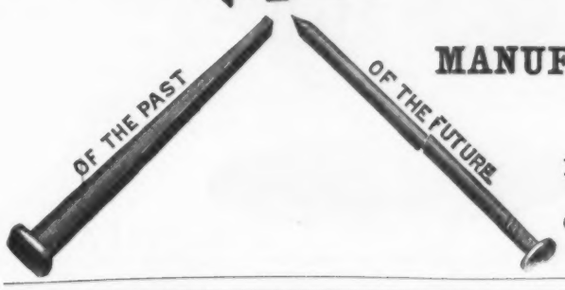

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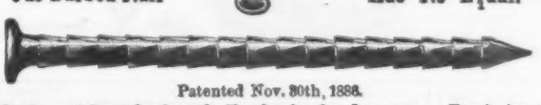

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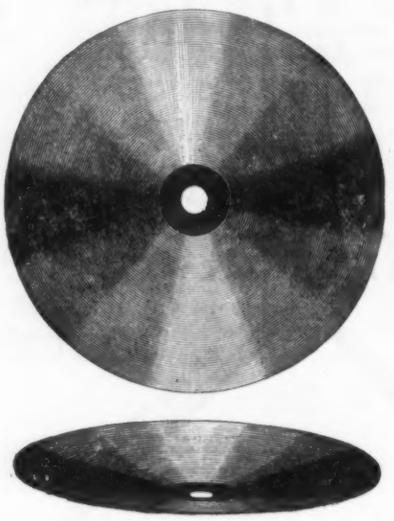

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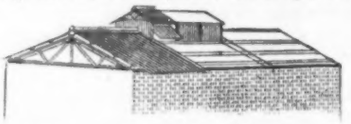

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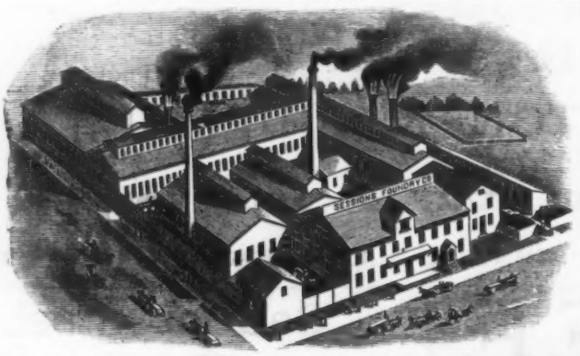

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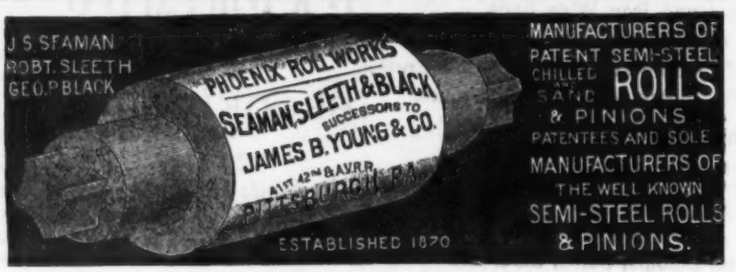

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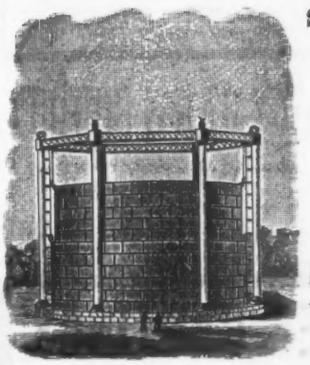

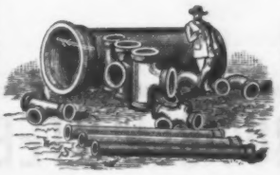

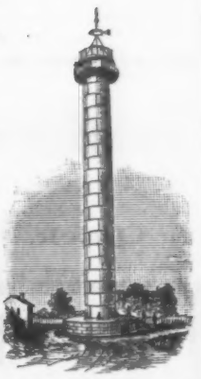

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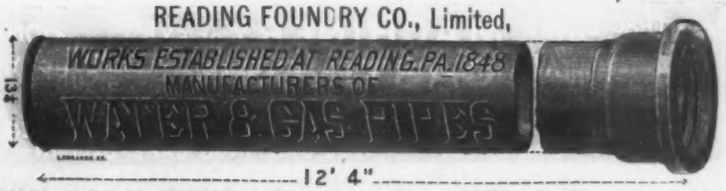

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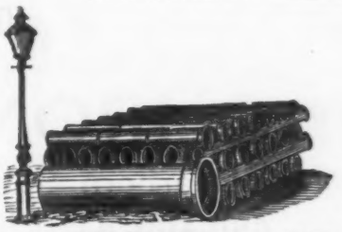

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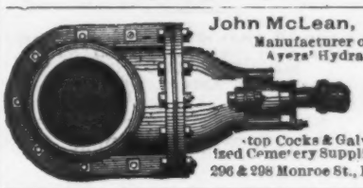

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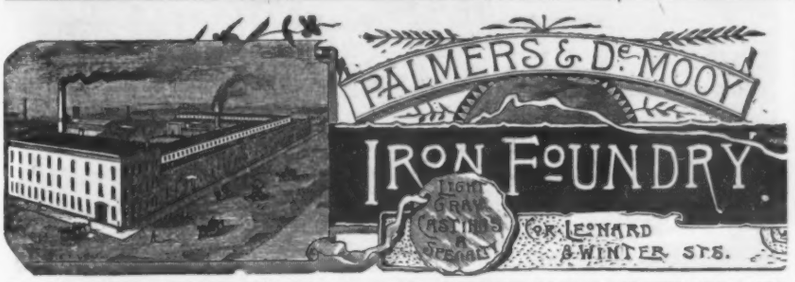

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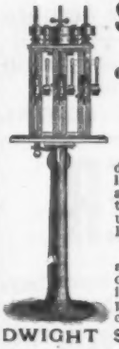

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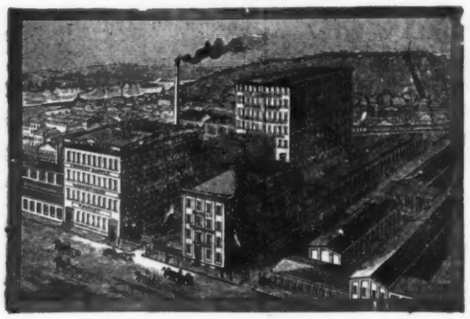

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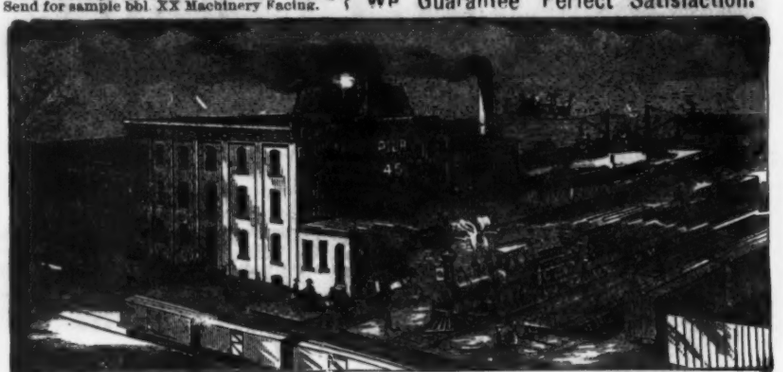

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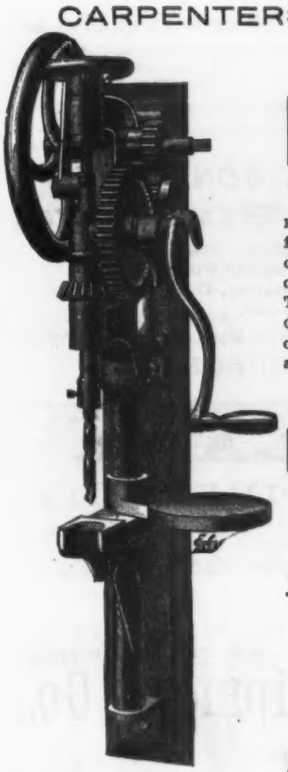

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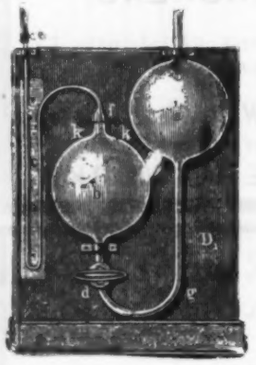

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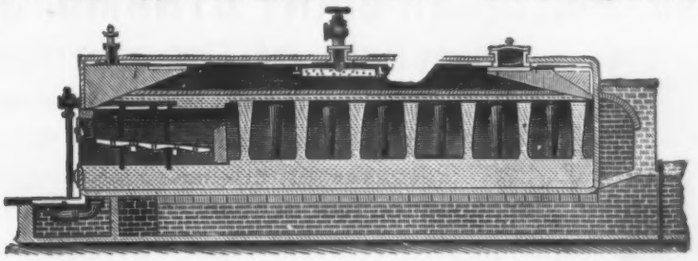

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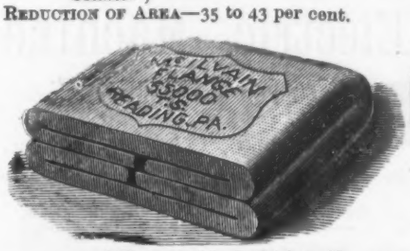

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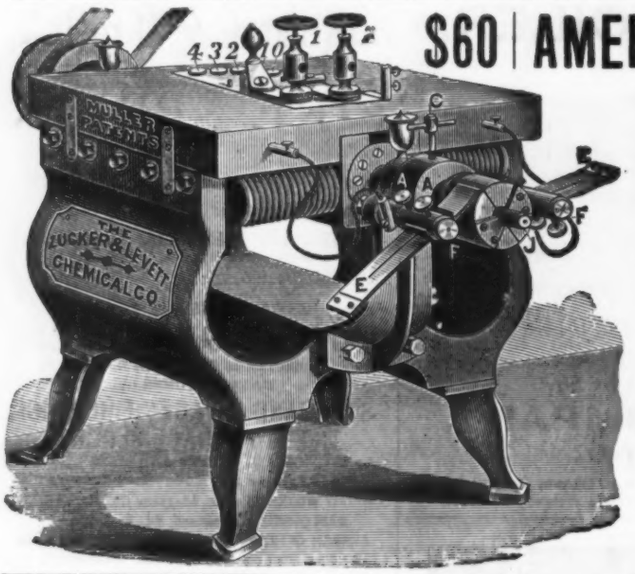

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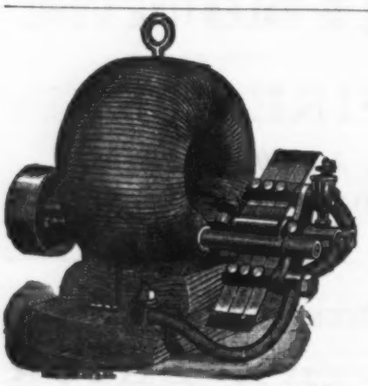

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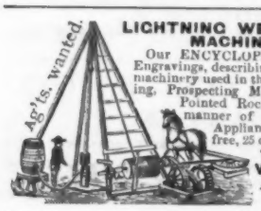

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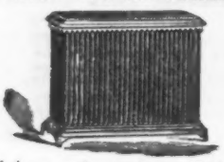

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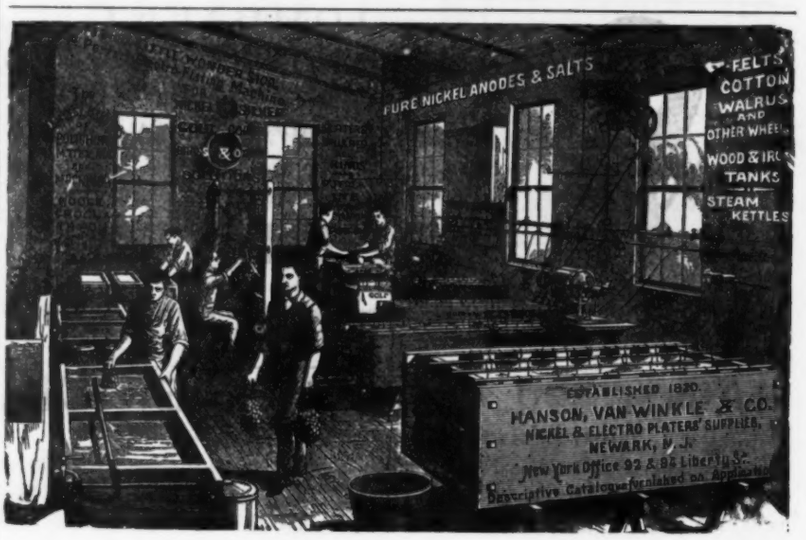

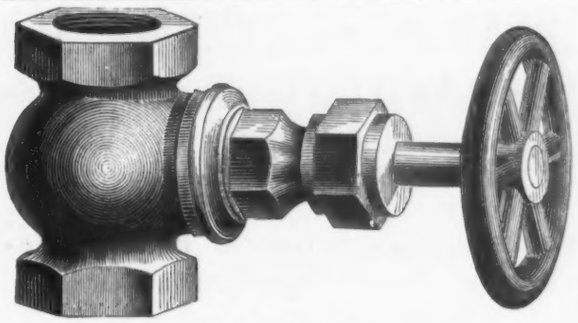

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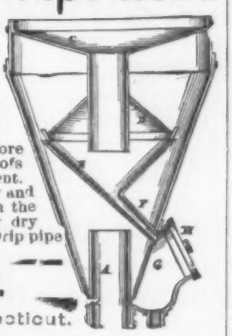

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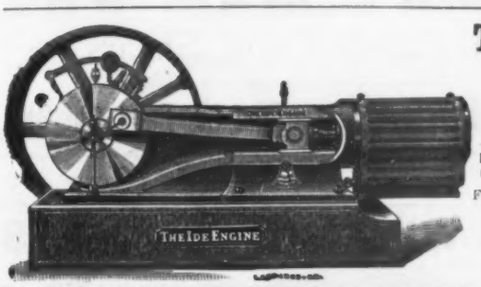

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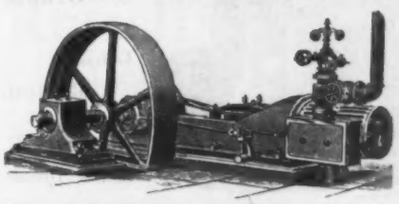

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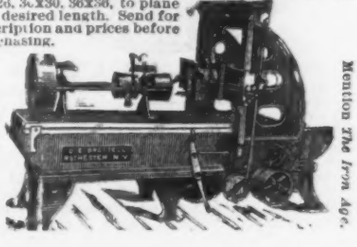

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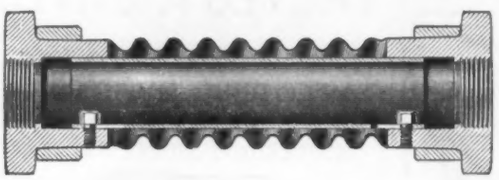

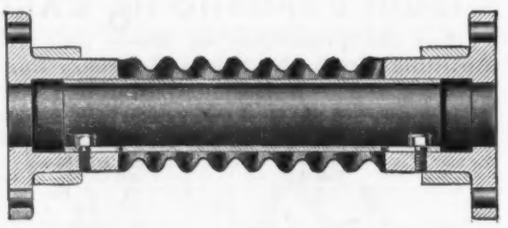

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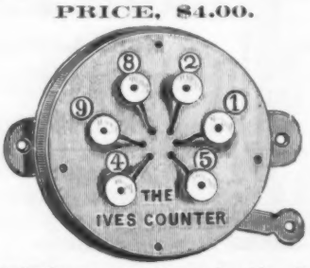

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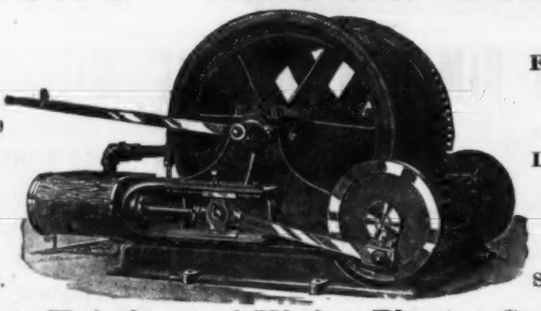

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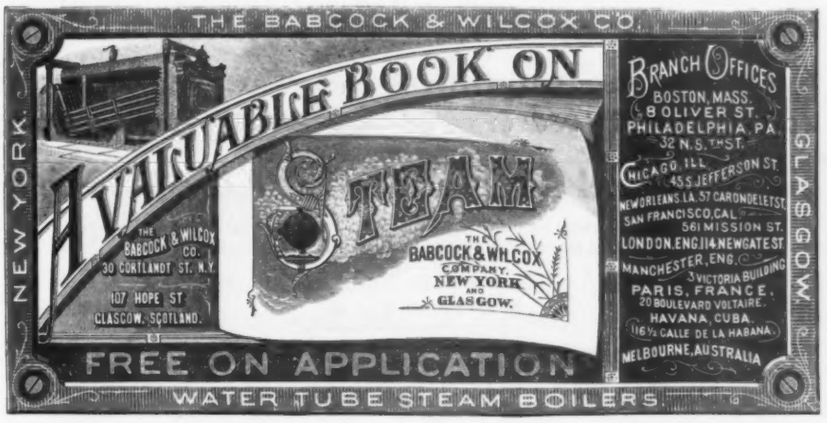

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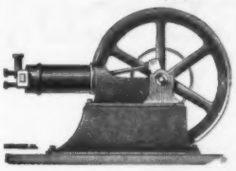

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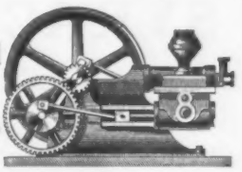

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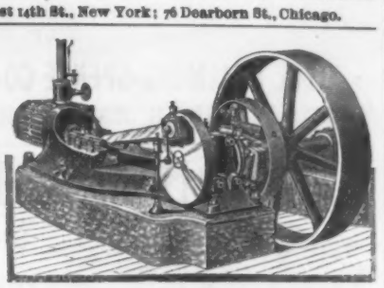

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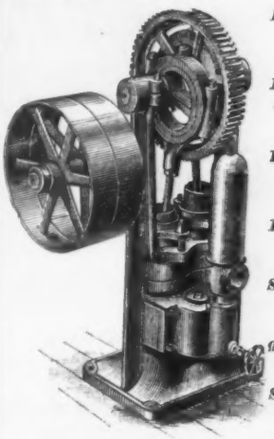

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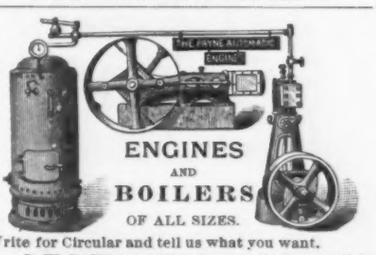

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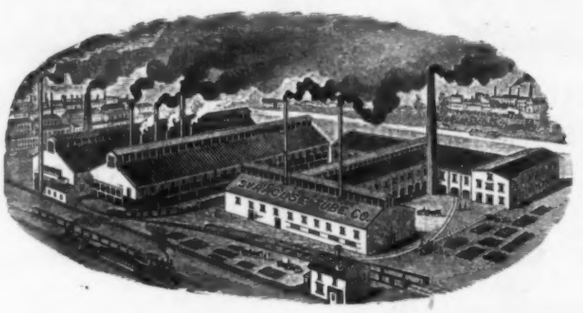

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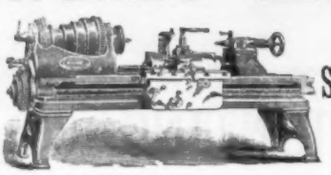

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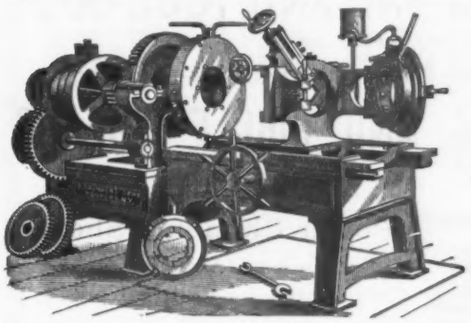

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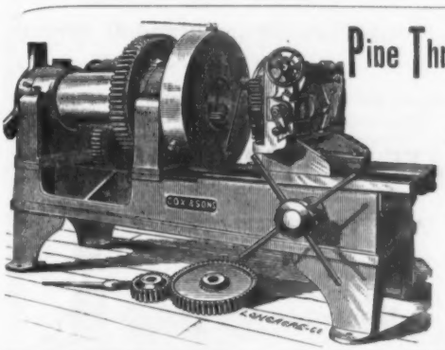

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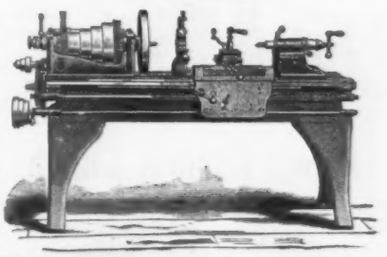

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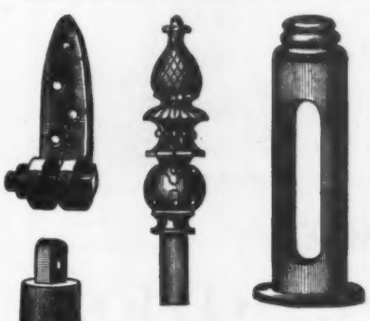

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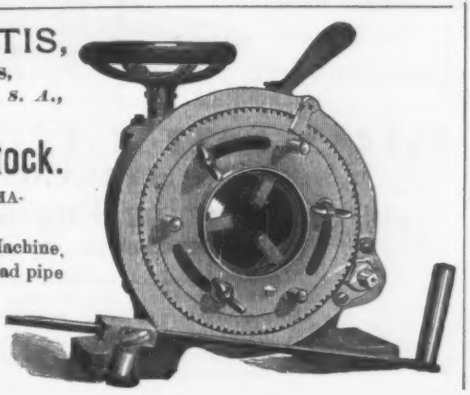

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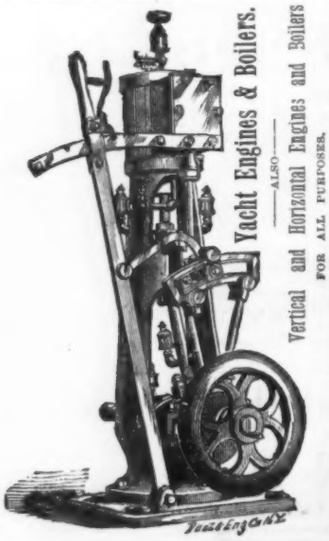

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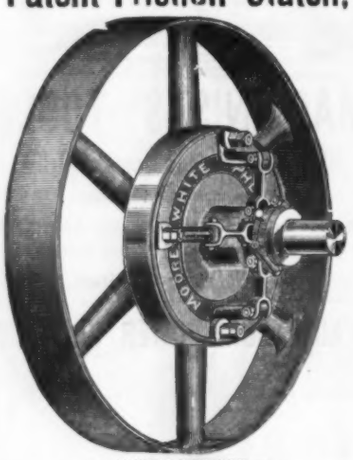

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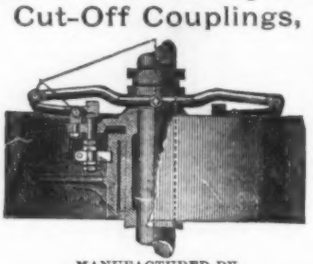

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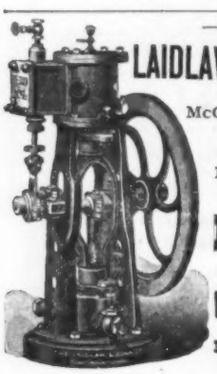

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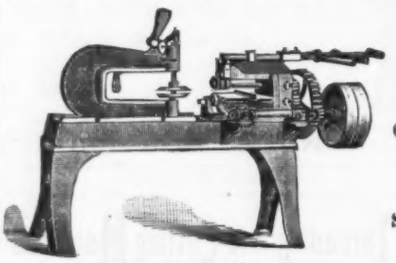

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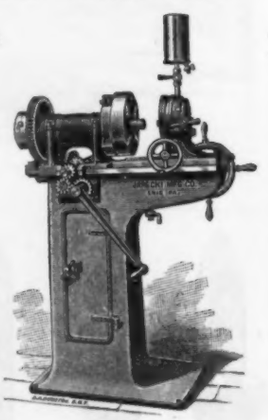

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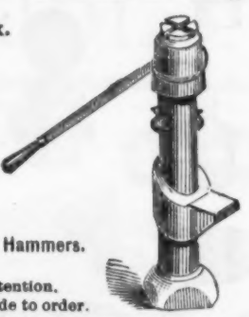

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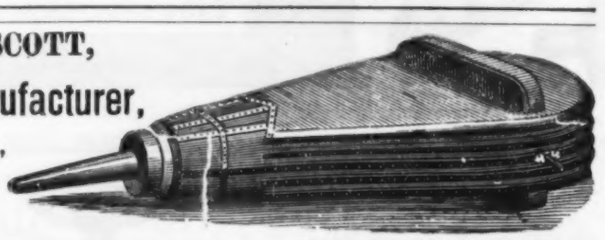

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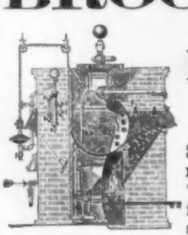

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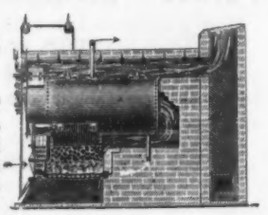

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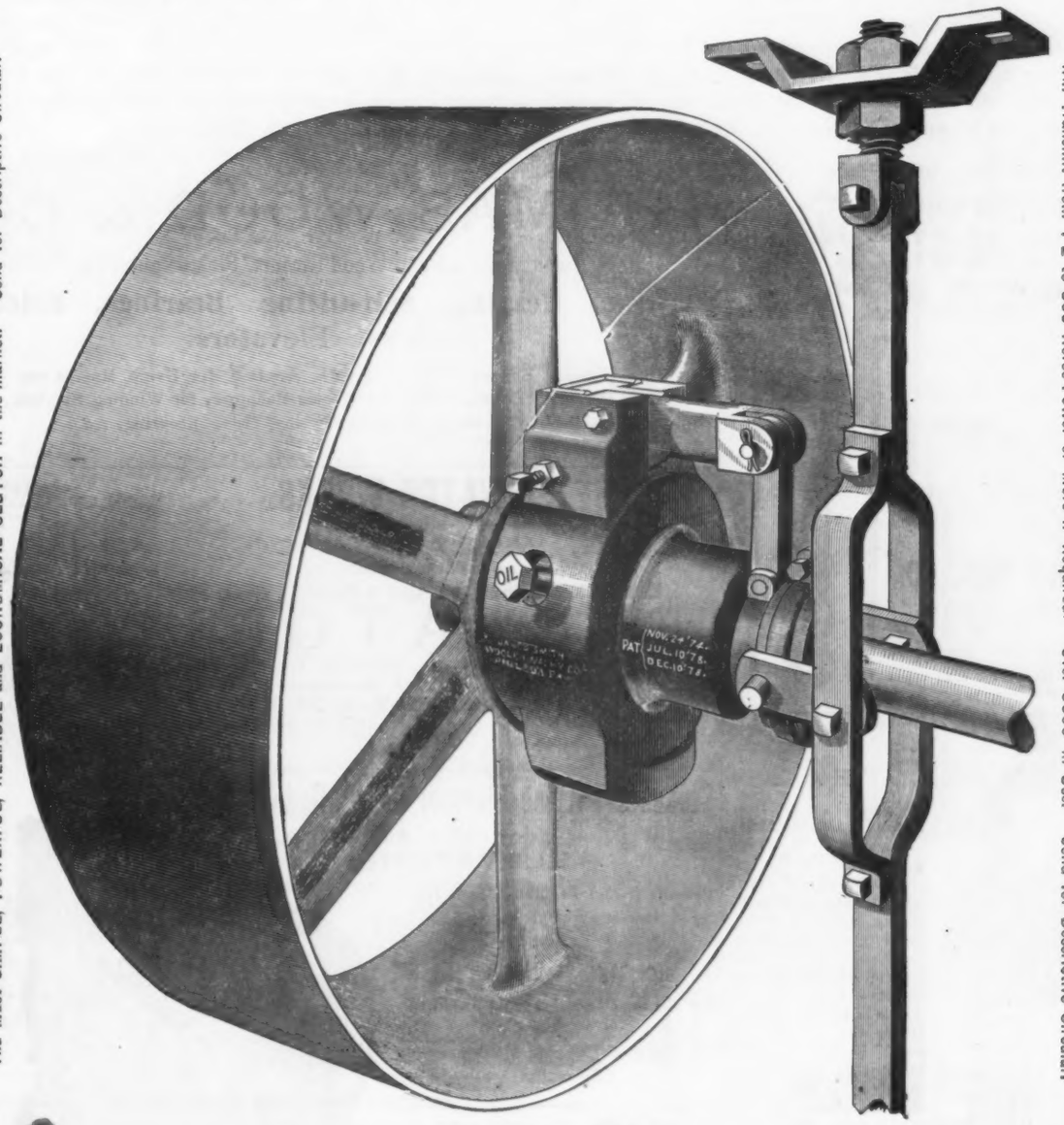

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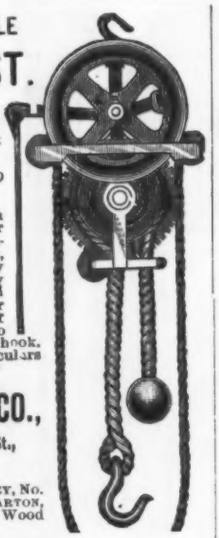

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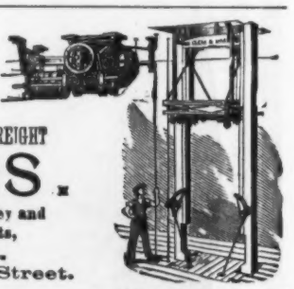

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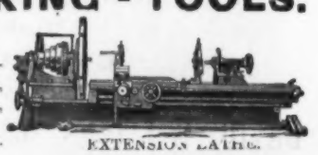

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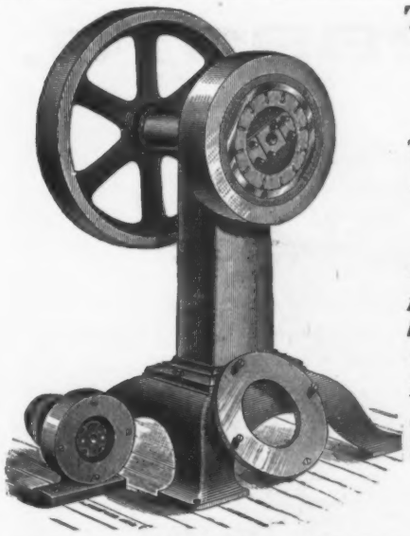

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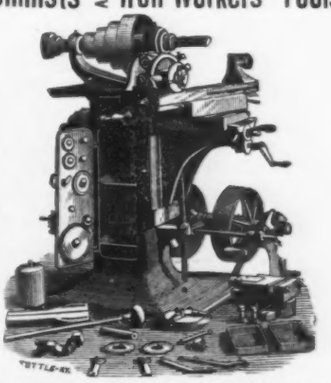

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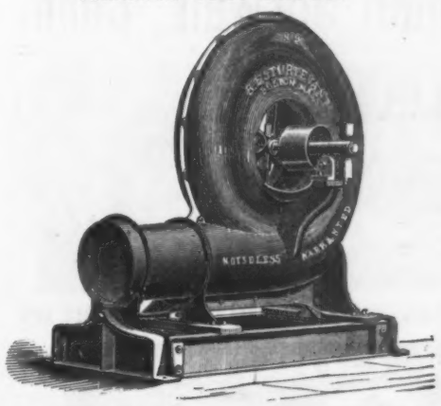

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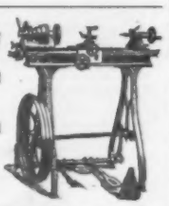

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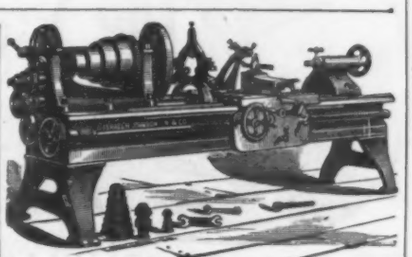

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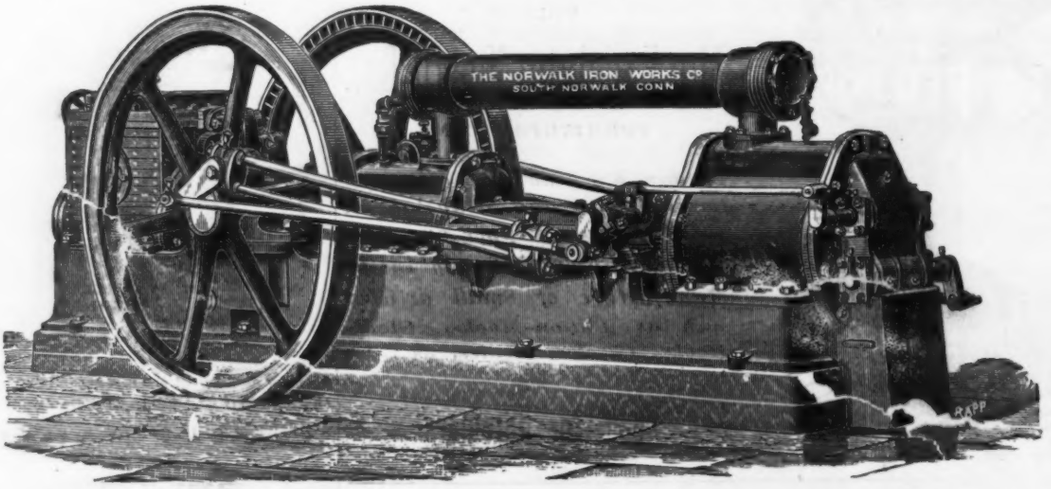

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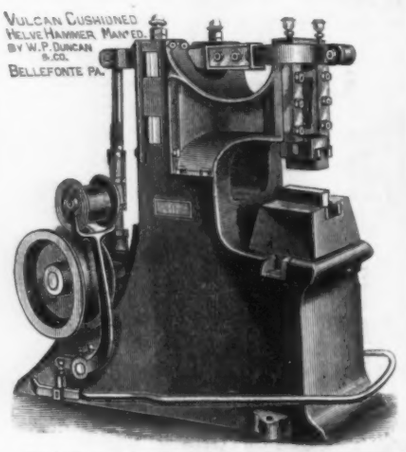

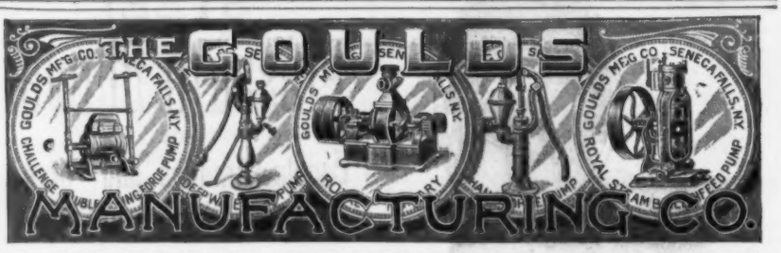

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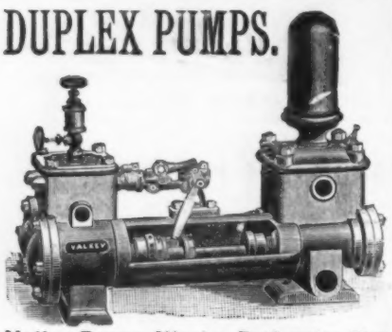

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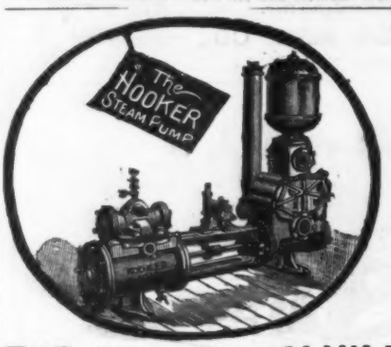

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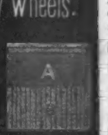

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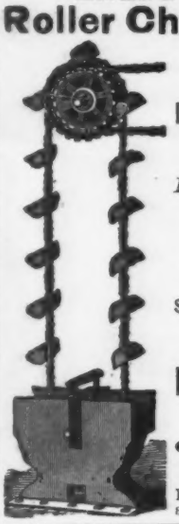

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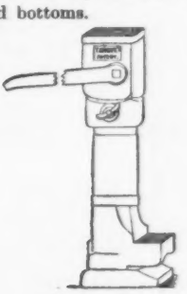

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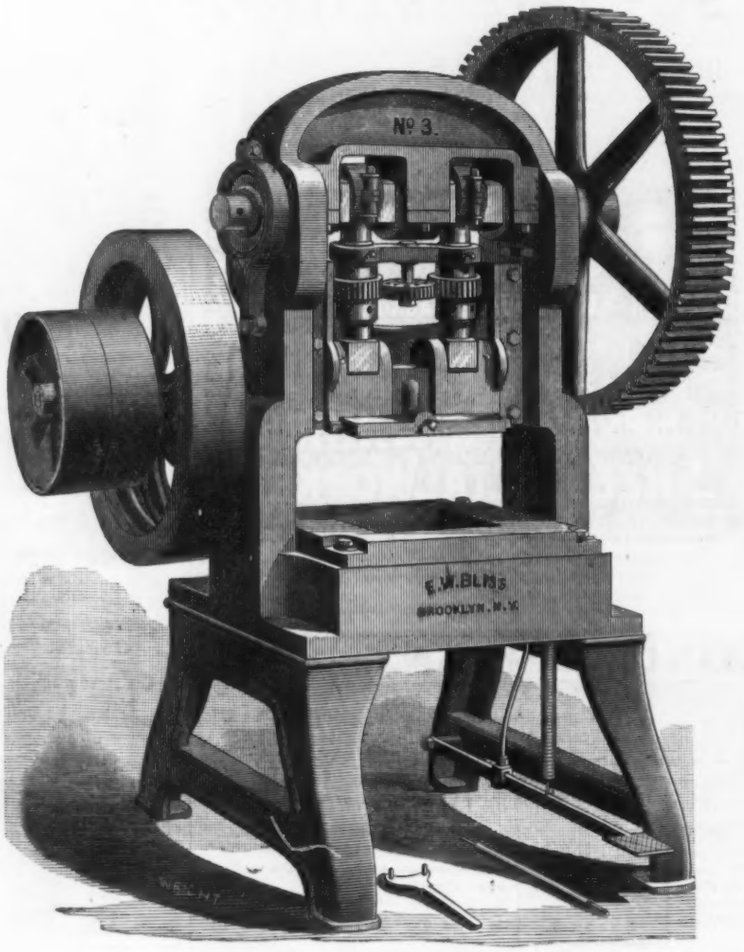

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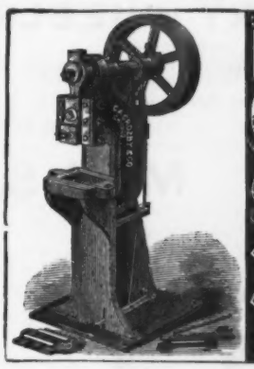

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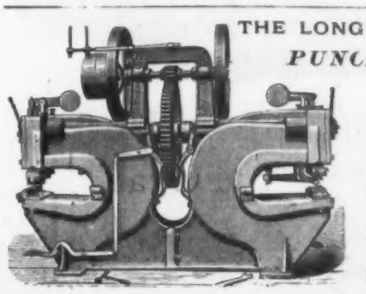

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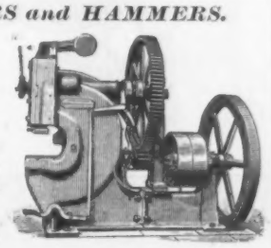

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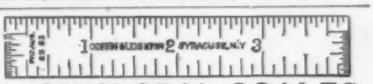

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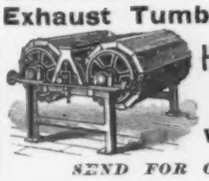

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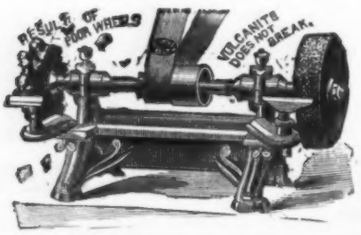

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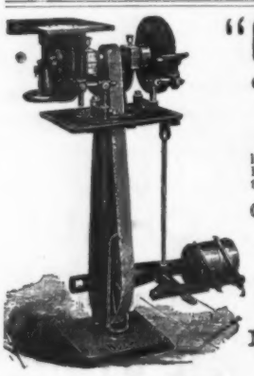

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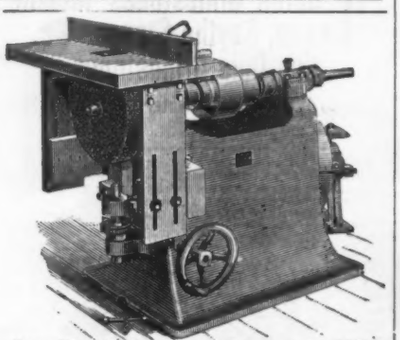

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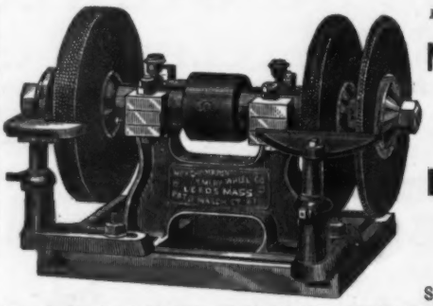

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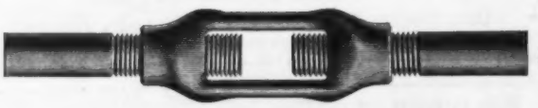
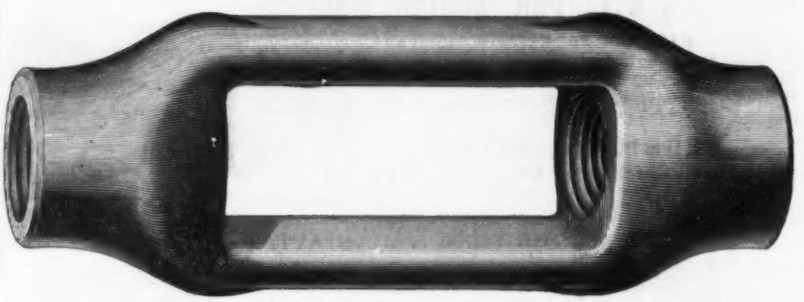
BEST.  CHEAPEST.



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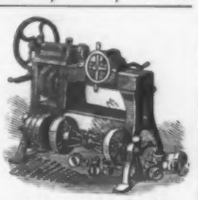

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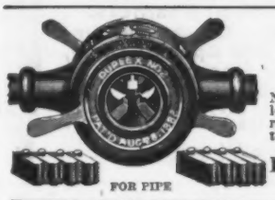

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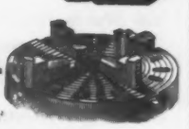

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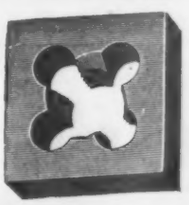

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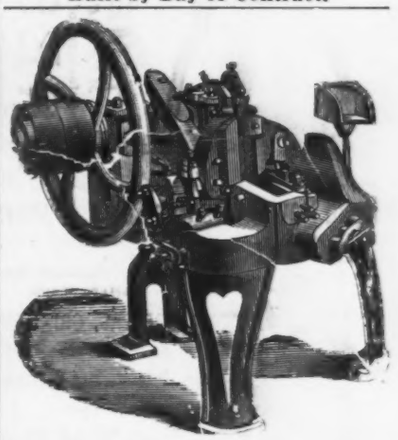

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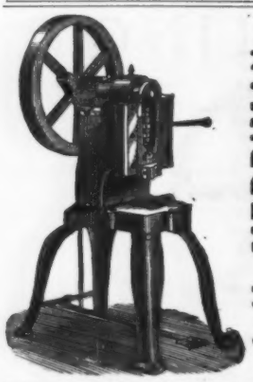

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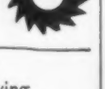

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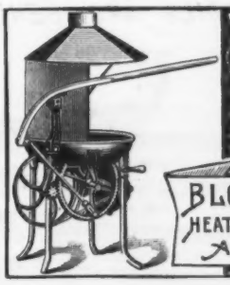

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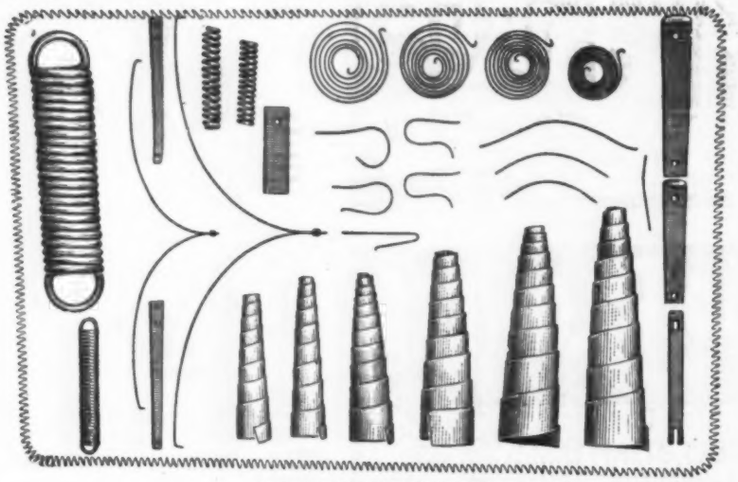

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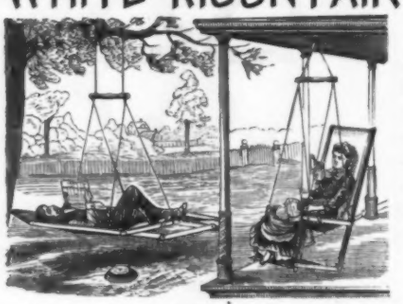

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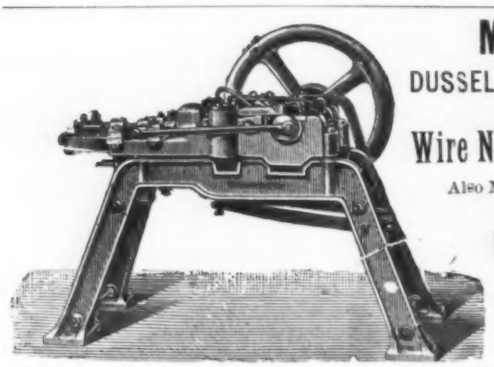

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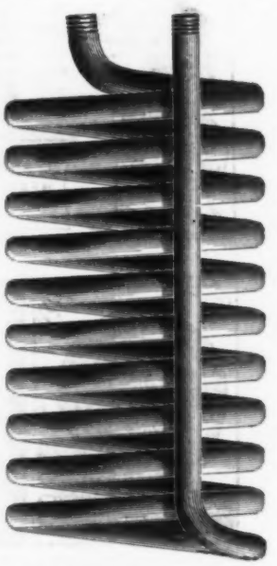

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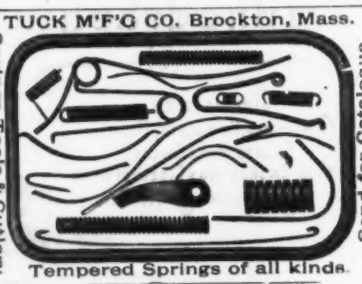

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One 40 " I. P. Morris Co. Engine,
One 25 " Hor. Engine. 10-in. 20-in. cylinder.
One 30 " Ver. Engine. Jacob Naylor's make.
One 10 " New York Safety Vertical Engine.
One 6 " Wood, Taber & Morse Port. Engine and Boiler on wheels.
One 30 H.-P. Erie City Iron Works Port. on skids.
One 8 " Shapley & Wells Engine and Boiler,
One 5 " Fitchburg Vertical Engine.
Six 50 " Hor. Tubular Boilers Good order.
One large lot of Wood-Working Machinery.
One 30 H.-P. Hor. Tubular Boiler
One 25 " " " "
One 30 " Vertical Tubular Boiler.
One 25 " Babcox & Wilcox Water Tube Boiler.
One 50-in. Boring and Turning Mill.
One 12 in. Compound Planer.
One 3 Spindle Drill.
One 36-in. Swing by 16-ft. bed Engine Lathe.
One 24 x 16-ft. Engine Lathe.
One 16 x 8-ft. Harrington Lathe.
One 16 x 6-ft. N. Y. Steam Engine Co.'s Lathe.
One 15 x 5 ft. Harris Engine Lathe.
One Fox Lathe with attachments.
One 14 x 10 x 10 Worthington Duplex Pump.
One Improved Cope & Maxwell Deep-Well Pump.
Four Sturtevant Blowers. Second-Hand.

Please write if you want Machinery of any kind. I have a large stock constantly changing.

HENRY I. SNELL, 135 North 3d St., Philadelphia.

MACHINE TOOLS.

FOR IMMEDIATE DELIVERY.

1 32 in. x 18 ft. bed, treble-geared **LATHE.**
1 36 in. x 36 x 9 ft. stroke **PLANER.**
1 40 in. x 36 x 12 ft. stroke "

These Planers are held at very low prices.

1 72 in. Pulley **TURNING MACHINE.**
1 72 in. Pulley **BORING MACHINE.**
1 13 in. **SLOTTER.**
1 42 in. Cam Milling Machine for Printing Press Cam

The Newark Machine Tool Works,
NEWARK, N. J.

FOR SALE.

4 6 x 17 Horizontal Tubular Boilers.
1 250 H.-P. Sectional Boiler.
1 9 x 18 Upright Boiler.
1 26 x 48 Corliss Engine.
1 20 x 48 Wheelock Engine.

MARVIN BRIGGS, 12 Broadway, N. Y.

!!! FOR SALE !!!

BAKER BLOWERS, Nos. 5½ and 6, also a No. 5 at Idaho Springs, Col.
ROOT BLOWERS, Nos. ¼, 4, 5 and 7. Sturtevant Blowers, Nos. 4, 6, 7, 8 and 9.
2 WESTINGHOUSE AUTOMATIC ENGINES, 15 and 60 H.-P. each; Air Compressor; Crushers; 20-ton Galena Smelter; write and state your wants to
C. R. BIGELOW, M. E.,
45 Dey St., New York.

Price List of Iron Working Tools

ON HAND BY

THE HENDEY MACHINE CO., Torrington, Conn.

15 in. Pillar Shaper, with Common Vise.....$275
15 in. " " " Improved " 300
24 in. " " " Common " 450
24 in. " " " Improved " 500
25 in. " " " " " 650
15 in. Traverse Head Shaper, with Improved Vise 550

10 in. x 10 in. x 2 ft. Planer..... 180
16 in. x 16 in. x 4 ft. " 360
22 in. x 22 in. x 5 ft. " 450
24 in. x 24 in. x 6 ft. " 600
26 in. x 26 in. x 8 ft. " 700
30 in. x 30 in. x 8 ft. " 1000
30 in. x 30 in. x 10 ft. " 1075
30 in. x 30 in. x 12 ft. " 1150

10 in. x 4 ft. Hand Lathe..... 60
12 in. x 4 ft. " " 72
12 in. x 5 ft. " " 75
12 in. x 6 ft. " " 78
15 in. x 6 ft. " " 100
15 in. x 8 ft. " " 107

12 in., 15 in. and 18 in. Slide Rests, $30, $40 and $50.

1, 2, 3 and 4 Spindle Gang Drills, $120 $135, $150. $165.

14 in x 6 ft. $225

18 in. x 6½ ft. Extra Heavy Engine Lathe.....$325
18 in. x 8½ ft. " " " " 350
18 in. x 10 ft. " " " " 375
18 in. x 12 ft. " " " " 400

Brass Turning Lathe, with Turret. 500
" " " without " 400

Also a few good second-hand Lathes, Planers, &c.
Please mention this paper when sending for Catalogue.

FOR SALE.

RUSTED ROD IRON

The following sizes:

27 bdls., ⅝ in. Round.
69 bdls., 3-16 in. Square.
26 bdls., ⅛ in. Square.

For price apply to

DAN'L W. RICHARDS & CO.,
88 to 96 Mangin St., New York.

SECOND HAND
MACHINISTS' TOOLS.

1 Planer, planes 12 ft. long, 48 x 38, double heads or cross head
1 Planer, planes 12 ft. 36 in. x 34 in.
1 7-ft. 28 x 28 Planer.
1 Planer, planes 3 ft. long, 19 in. x 16 in.
1 18-ft. bed, 50 in., Engine Lathe.
2 8-ft. 18 in., Engine Lathe.
2 Monitor Head Lathes.
1 8-ft. bed, 24 in. Wood and Light Lathe.
1 9-ft. bed, 16 in., Engine Lathe.
1 Horizontal Boring Mill, 48 in. swing.
1 No. 1 Pratt & W. Screw Machine, Wire Feed.
1 2-spindle Pratt & Whitney Drill.
1 6-spindle Pratt & Whitney Drill.
1 2-spindle Edging Machine.
1 10-in. Stroke Slotting Machine.
Send for List of Second-hand Tools.

New York Machinery Depot,

Bridge Store No. 16, on Frankfort st., New York

FOR SALE AT LOW PRICES.—1 each, 12 and 16-in. Turret Lathe, Warner & Swazey, good order. 1 12-inch Automatic Turret Lathe, Freck, new, $150. 1 2-Spindle Drill Press with Adjustable Spindles, $50. 1 No. 2, Garran Hand Feed Miller, good order, $75. 1 Power Punch, punches ½ x ½, new, $125. 2 Large Screw Punches, good order and cheap. 1 3-Spindle Horizontal Nut Tapper, good order, $75. 1 36-inch Car Wheel Borer, good order, $250. 1 36-inch Pulley Turning Lathe. 1 Seymour Pulley Balancing Machine. A large assortment of Lathes, Planers, Shapers, etc. New and second hand. Send for catalogue.
W. H. ROBERTSON, 51 So. Canal St., Chicago, Ill.

FOR SALE.

Blowing Engine, new and first-class; Steam Cylinder 36 in. diam.; Blowing Cylinder 84 in. diam.; Stroke 48 in.; Weight 71 tons. Can ship in ten days' notice.

CLEVELAND SHIP BUILDING CO.,
Successors to Cuyahoga Steam Furnace Co.,
Cleveland, Ohio.

GOOD SECOND HAND TOOLS.

I want to buy for cash good second-hand

LATHES,
PLANERS
AND DRILLS.

Address "A. B. S.,"

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DIXON'S GRAPHITE (sometimes called blacklead or plumbago) for a lubricant must be pure; to be pure must be "floated." Ask for Dixon's Dry American Graphite, or address

JOS. DIXON CRUCIBLE CO.,
JERSEY CITY, N. J.

MEMORANDUM
FROM
HENRY I. SNELL,
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PHILADELPHIA.

I have for sale cheap a new **New York Safety Steam Power Company's Steam Yacht Engine and Boiler,** with Pumps, Condenser and all attachments for the complete equipment for a boat 65 to 70 feet long, and capable of driving the same about 12 miles per hour.

FOR SALE.

ONE OF GEORGE H. CORLISS'S UPRIGHT ROLLING MILL ENGINES;

Cylinder, 32 in. x 60 in.; Shaft, 17 in. Diameter, with fly wheel of 25 tons weight and 20-foot diameter fitted to the shaft; *also* 1 Berriman Heater, 4 feet diameter, 12 feet high, with steam and exhaust pipe and fittings for same; *also* 2 Sturtevant Steel Pressure Blowers, 6 ft. diameter; Outlet, 20 x 24, with 14 in. pulley on each side for 12-in. belt. Address

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FOR SALE.

ONE SCREW PLANER.—14-foot Bed; will take in 4 feet between uprights.

Address

SHICKLE, HARRISON & HOWARD IRON CO.
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SPECIAL BARGAINS.

One 18 x 48 Horizontal Corliss Engine.
" 16 x 32 " Wright "
" 14 x 42 " Wheelock Engine.
" Copeland & Bacon Double-Hoisting Engine, 9 x 10.
" Worthington Duplex Pump 7½ x 4½ x 10.
Will be sold low to close.

D. B. CRUICKSHANK,
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MACHINERY SALE.

38 in. x 36 in. x 12 ft. Pond Planer, in good order.$890
30 in. x 24 in. x 6 ft. Planer, with new gears and screws 250
26 in. x 24 in. x 5½ ft. New Haven Planer, in fine order..... 400
18 in. x 10 ft. Engine Lathe, with 9 in. chuck..... 185
14 in. x 6 ft. Engine Lathe, newly repaired..... 150
26 in. New Haven B. G. Drill, good order..... 140
4 x 6 Horizontal Engine, nearly new..... 125
8 x 12 Horizontal Engine, good order..... 150
10 x 15 Horizontal Engine, good order..... 175
Large stock of new Tools, Engine Boiler, &c. Send for stock list. S. M. YORK, Cleveland, Ohio.

ENGINES, &c., FOR SALE.

One pair of 30-inch by 72-inch Horizontal Engines, connected to one main shaft, built by the Corliss Steam Engine Co. Cut Gear Wheel, 24 ft. 9-in. diam., 180 teeth. Jack Gear, 9 ft. 7½-in diam., 70 teeth, with its shaft 12 ft 7 in. long, and two bearings. Valve Gear of the crab-claw pattern. Condensing Apparatus connected to each cylinder, of the Corliss Upright Pump type. The gears and all parts of the Engine are in good condition and are now in operation. These Engines are exceptionally heavy and well adapted for Rolling Mill work, or could be connected to blowing cylinders, air compressors, &c., very readily. Delivery, July 1st, 1888. Also, for sale, about 65 ft. of 7-in. Hammered Iron Shafting, with couplings, bearings, &c. Also 4 14 ft. Pulleys, 31-in. face fitted to above shaft. Apply to

JOHN WATERMAN, Treas.,
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Or to REMINGTON & HENTHORN,
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Providence, R. I., May 16, 1888.

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14 in. x 48 in. Corliss Beam.
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One pair Corliss Horizontal, 30 in. x 6 ft., first-class, now running.
New Engines, from 2 H.-P., Vertical or Horizontal.

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At less than half first cost, a Delamater Duplex 16 in. x 36 in. Compressor, in thoroughly good working order. Address

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Rolling Mill Machinery
For Sale.

SHEARS, ENGINES, BOILERS, FLOOR PLATES, &c.

One Heavy Plate Shear, 48-inch throat.
" Large Lever Shear. Cutting old rails.
" Small " " " scrap iron.
" Rotary " " " strips 5-16 in.
" Large Upright " " tops and bot'ms 1 in
" Small " " " ¾ in.
" Upright High-Pressure Engine, 16 x 18 in.
Two Winslow Squeezers. One new.
One Dudgeon Steam Hammer, 18 in. diam., 40 in. stroke.
Upright Tubular Boilers, 15 ft. long, 60 in. diam.
Cylinder Boilers, 20-24 ft. long, 30 in. diam.
Stacks, 30 to 50 ft. long, 30 in. diam.
One Crane (iron) about 5 tons.
Two Cranes about 5 tons capacity.
Cast Iron Floor Plates, 2 x 4 ft.
Boshes, Puddle Furnace Castings, Steam Piping (cast and wrought iron).
Blast Pipe, Cinder Buggies, Tanks, Rolls and Housings, &c.
Beam Engine, 14 x 30 in.
" " 30 x 60 in.

The above are in good order, and for sale in lots to suit for immediate delivery.

THOMPSON C. GILL & CO.,
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SECOND-HAND
DROPS AND LIFTERS

bought, sold, or taken in exchange for new.

BEECHER & PECK,
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ROLL TURNING LATHES, BLOWER AND ENGINE.

One Single " " " 18 in. "
" Upright Engine, 6½ in. x 17 in.
" Root Blower, No. 7.
All in good order,

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FOR SALE.

One 15-Light Dynamo complete, with 15 Arc Lights. New.

DANIEL KELLY,
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FOR SALE.

75 Tons Stove Plate.
100 Tons Machinery Iron.
Also Old Iron and Metals of all kinds.

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FOR SALE.—18 x 42 CORLISS ENGINE, built very heavy for the Brush Electric Light Co.; other styles of Automatic and Plain Slide Valve Engines, Boilers and Pumps.

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Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

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WANTED.—To buy a Good Second-hand or New 60 in. x 60 in. PLANER, to plane from 15 to 30 feet. If Second-hand, must be of modern design and in first class order.

FOSDICK & PLUCKER,
Sixth & Culvert,
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FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock, Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85 two stories. Warehouse, 22 x 30, two stories in rear. Does a large and paying business, which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade. Address

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ATTENTION,

Capitalist - and - Foundryman.

An Incorporated Company offers for sale State Rights to manufacture and sell a valuable Patent Boiler (for house-heating). Hundreds in successful operation, which can be referred to for full particulars.

Address Box 663,

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New England States reserved.

FOR RENT.

VALLEY FORGE MILL AND WATER-POWER

(Belonging to Estate of Charles H. Rogers, dec'd.), Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.

For particulars, address

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FOR SALE.—The Northwestern Foundry. Largest and best in Minneapolis. Located on half of block 106 (330 x 165 ft.) and part of block 105, corners Third street, Ninth and Tenth aves., South. Main building (200 x 60 ft.) is brick with slate roof, contains four Cranes, three Cupolas, &c., complete set of Car-wheel and various patterns for Stoves, Machinery, Architectural, Ornamental, Bridge and Railroad Castings. Office also of brick, 40 x 20 feet; fire-proof vault and burglar safe in same. Will sell the entire plant, including the valuable Real Estate, Railroad Tracks, Track and Wagon Scales, &c. All the above in first-class order.

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IRON ORE PROPERTY.

For Sale or Lease, situate within three miles of the C. & O. Ry., at White Sulphur Springs, W. Va., about 3000 Acres, underlaid near surface by a persistent seam of red oxide iron ore from 10 to 60 feet in thickness. Numerous analyses show

61 per cent. Metallic Iron.
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Six miles of outcrop have been proved by a number of openings. The helderberg limestones, more than 300 feet thick, are exposed at many points, and the hills containing the New River coking coals are within sight. There are good sites for furnace plants in the immediate vicinity, and ample water for all purposes. For further particulars, apply to

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OR

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A Factory consisting of a Two story Brick Building, 30 x 70 feet; a Two-story Brick Addition, 22 x 36 feet; a One-story Brick Addition, 14 x 22; a Frame Coal Shed and Store Room; a 40 Horse-power Engine and 50 Horse-power Boiler; a complete line of Shafting, Belting and Steam Pipes for heating; convenient to railroad and tide water, and nearly new; terms easy and price low. Inquire of CHAS. GRISWOLD,
Guilford, Conn.

FOR SALE

A well-established Hardware and Sporting Goods business, located in Jacksonville, Florida. The stock amounting to from $10,000 to $15,000 will be sold at a sacrifice to close the business; sales last year $60,000. The firm has control of the sporting goods trade in Florida, and lease of the best stand in Jacksonville. Address

C. B. BENEDICT,
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TRAVELERS WANTED

On Commission for ready selling articles as side line. No competition and Patented.

HARDWARE TRADE SOLICITED.

Address with reference.

CLINE MFG. CO.,
70 and 72 W. Washington St., Chicago.

PROPOSALS FOR STEEL FOR USE IN THE CONSTRUCTION OF THE UNITED STATES ARMORED BATTLE-SHIP "TEXAS," AT THE NAVY YARD, PORTSMOUTH, VIRGINIA.—NAVY DEPARTMENT, Washington, D. C., June 21, 1888.—Under authority conferred by an act of Congress entitled "An act to increase the naval establishment," approved August 3 1886, (24 Statutes at Large, page 215,) sealed proposals are hereby invited, and will be received at this Department until 12 o'clock noon, on Monday, the 23d day of July, 1888, for furnishing the following classes of material for use in the construction of said ship: CLASS A.—*Steel plates.*—About nine hundred and twenty (920) tons of steel plates from 2½ to 25 pounds per square foot. CLASS B.—*Steel shapes.*—About five hundred and three (503) tons of steel shapes, as follows: About two hundred and seventy (270) tons of angle-bars of various sizes; about one hundred and thirty-two (132) tons of angle and T bulb beams with proper curvature, from 11 to 24½ pounds per lineal foot; about ten (10) tons of T-bars, of 8 pounds per lineal foot; about ninety-one (91) tons of channel-bars, of 10, 15 and 25 pounds per lineal foot. CLASS C.—*Steel rivets.*—About one hundred (100) tons steel rivets, from ⅜ inch to 1¼ inch diameter. CLASS D.—*Steel castings.*—About one hundred and twenty (120) tons of steel castings, of various shapes, including stem, stern-post, hawse-pipes, riding and mooring bitts, chain-pipes etc. The tons of material herein called for to be of 2,240 pounds each. All said material to be of such detailed dimensions, weights and shapes as may be required in the construction of the vessel, and to be delivered at such place or places in the Navy Yard, Portsmouth, Virginia, as may be designated by the Commandant of said Yard. Deliveries to commence within thirty (30) days from the date of contract, and to be completed within six (6) months from such date: the material to be delivered promptly, in accordance with a detailed schedule prepared by the Assistant Naval Constructor at said Navy Yard, and in the order required to carry on the work to the best interests of the Government. All material to be of domestic manufacture, and to be accepted only after passing such tests as may be prescribed therefor by the Secretary of the Navy. Proposals must be in accordance with forms which will be furnished on application to the Bureau of Construction and Repair, and may be for one or more of the classes designated, but no bid for a portion of any class will be considered. Each proposal must be accompanied by satisfactory evidence that the bidder is able to furnish and deliver the material for which he bids. Each proposal must be accompanied by a certified check, payable to the order of the Secretary of the Navy, for an amount equal to five per cent. of the bid. The check received from the successful bidder will be returned to him on his entering into a formal contract for the due performance of the work, and giving bond for the same, with satisfactory surety, in a penal sum equal to twenty-five per cent. of the amount of his bid; but in case he shall fail to enter into such contract and to give such bond within twenty days after notice of the acceptance of his proposal, the check accompanying such proposal shall become the property of the United States. All checks accompanying proposals which are not accepted will be returned immediately after the award shall have been made. Information relative to the dimensions and shapes of material, and all other information essential to bidders, will be furnished on personal application to the Bureau of Construction and Repair, Navy Department. Proposals must be made in duplicate, and enclosed in envelopes marked "Proposals for Steel for the Armored Battle-ship 'Texas'," and addressed to the Secretary of the Navy, Navy Department, Washington, D. C. Each class of materials will be bid for separately, and the Secretary of the Navy reserves the right to reject any or all bids, or the bids on any class or classes, as, in his judgment, the interests of the Government may require.

D. B. HARMONY, *Acting Secretary of the Navy*

AGENCY WANTED

OF

WIRE NAIL MILL

For New York, New Jersey and New England States.

Address "D. G.," Box 91,

Office of *The Iron Age*, 66-68 Duane St., N. Y.

TO LET.

Office and Sample Room.

One half of Basement. All of Subcellar.

HUMASON & BECKLEY MFG. CO.,
80 ChambersStreet, New York

FOR SALE.

The Trustees of The Abbott Iron Co., Baltimore, Md., offer for sale, the following:

Hot Rail Saw-Rigging, for cutting to 30 ft., with bed-plate, stands, shafting, gearing, &c.
Gifford Injectors, Nos. 8 and 9.
One Testing Machine, made by Riehlé Bros.
One Railroad Scale, " " 32-ft.l'ng
Four Dimpfel Blowers, 24 in. x 60 in.

Apply to

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P. O. Box 65, Baltimore, Md.

TO PARTIES desiring to have an Agent to represent their goods for export to the Spanish speaking countries I can offer special inducements. Have been connected many years with this trade and travelled through these countries. Address

"P.," P. O. Box 672,
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EXPORT.

The advertisers (English Merchants) having imported American Hickory Woodware for the last 12 years, are anxious to secure the sale of another line of American manufacture. Have a connection with Collieries, Ironmongers, Engineers and Colonial Merchants. American references given. Address "J," Box 44, office of *The Iron Age*, 66 and 68 Duane St., New York.

NEW DRILL GRINDER.

Send for our special circular with testimonials and description of the Mossberg Drill Grinder, simple in construction, quick and easy to operate. Manufactured and sold by

DIAMOND MACHINE CO.,
Providence, R. I.

PROPOSALS FOR STEEL PLATES, &c.—June 30, 1888.—Sealed proposals endorsed "Proposals for Steel Plates, &c.," will be received from manufacturers or regular dealers only, at the Bureau of Provisions and Clothing, Navy Department, Washington, D. C., until 11 o'clock A. M., July 24, 1888, and opened immediately thereafter in the presence of bidders, for the supply, at the Navy Yard Washington, D. C., of 32 steel plates, 57,680 pounds; 16 angle-bars, 1,840 pounds; and 8 deck-beams, 624 pounds. Physical character of metal to be: Tensile strength, 70 000 pounds; elongation, 20 per cent.; contraction 35 per cent.; length of specimen (working part) equal to four times the diameter. Time of delivery, on or before August 30, 1888. Tie bids decided by lot. The above articles must pass the usual naval inspection, and a reservation of 20 per cent. will be withheld from the amount of each delivery until the completion of the contract. Bidders are referred to the Commandant at the Washington Navy Yard for specifications, forms of offer, and all information relative to the articles required. The proposals must be made in duplicate on the proper blank forms *and filled out as indicated by the blank.* The Department reserves the right to reject any proposal not considered advantageous to the Government.

JAMES FULTON, *Paymaster General, U.S. Navy.*

ROLLING AND NAIL MILL MACHINERY FOR SALE.

Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).

One 16-in. Nail Plate Train of three stands of rolls, with pinions, tools and fixtures complete.
One 18-in Muck or Forge Train, two stands of rolls.
One 50c-Horse-Power Corliss Beam Engine, with condenser, pumps and other connections.
70 Nail Machines.
3 Spike "
3 Guillotine or Plate Shears.
15 Grindstones, fixtures and countershafts.
43 Gould's Patent Nail Feeders.
About 600 ft. Shafting with pulleys; also Lathes, Planers, Drills and all necessary tools to do repairs.

All in perfect running order and will be sold cheap, as a whole or in parts. Above now located at Weymouth Iron Works, East Weymouth, Mass.

Enquire of

J. F. ROGERS, 101 Milk St., Boston, Mass.
or J. M. LEONARD, Somerset, Mass.

VALUABLE PATENT FOR SALE.

Patent for Plain Back Solid Steel Scoop for handling grain, coal, &c. Perfectly smooth back and smooth front, without rivets; can be made as cheap as the ordinary back-strap scoop.

Address

A. T. HEISER,
Scranton, Pa.

A GOOD HARDWARE BUSINESS FOR SALE.

Wishing to retire from all active business, the undersigned offer for sale their valuable and thoroughly established business. The stock is clean and well selected. Waverly, New York, is a growing place, with considerable manufacturing, and surrounded by a good farming country; has good water, gas works and sewers, also five railroads radiating from it. The location of the store building is central, with every convenience, including hydraulic elevator, &c. The business has been conducted successfully as wholesale and retail; can be continued as we have conducted it, or else we can soon reduce the stock, and it can be conducted as a retail alone.

In negotiating sale, reference given and required.

MERRIAM BROS., Waverly, N. Y.

FOR SALE.

AN UNUSUAL OFFER.

An old established Hardware Business doing the leading wholesale and retail trade in one of the best towns in Minnesota. This is an opportunity seldom offered. Reason for sale, death of proprietor. Address

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NOTICE.

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FOR THE NEW

Milk Shaker.

MANUFACTURED BY

Philada. Milk Shaker Mfg. Co.,

13TH & BUTTONWOOD STS.,

Philadelphia, Pa.

Address the Company, with reference.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & Co., and E. BISSELL & Co.
WHOLESALE
HARDWARE AUCTIONEERS,
12 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia please address

J. B. CARTER,
Hardware Manufacturers' Agent,
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4 dozen Plated Mortise Knobs, 2¼ inches, at $6.00 per dozen.
250 gross Fancy Wood Shutter Knobs, 1½ inches, at 50 cents per gross.
For sale by
JOHN BROWER,
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LARGE SIZE, 500 Pages, 6 x 9½ in. each, $3.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

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Smith, Beggs & Ranken Machine Company Property!

Embracing nearly an **Entire Block of City Real Estate** described as follows: The **whole Main Street front of City Block No. 296**; being 240 feet on West side of said street, with a frontage of **160 feet on East side of Second Street; 300 feet on South side of Monroe Street** (entire block front), by **150 feet on North side of Clinton Street**; being Lots Nos. 34, 35, 36, 62 and 63 of said Block; also all the improvements, machinery, fixtures, tools and patterns on the above described premises.

This property (being one of the largest and most complete establishments of the kind in the Western Country) will be sold by the undersigned, by order of Court, at Auction, on the premises, to the highest bidder, for cash, subject to a mortgage of about $60,000, on Tuesday, the 21st day of August, 1888, between the hours of 12 o'clock noon and 2 o'clock p. m. of said day.

WM. H. THOMSON, ASSIGNEE,
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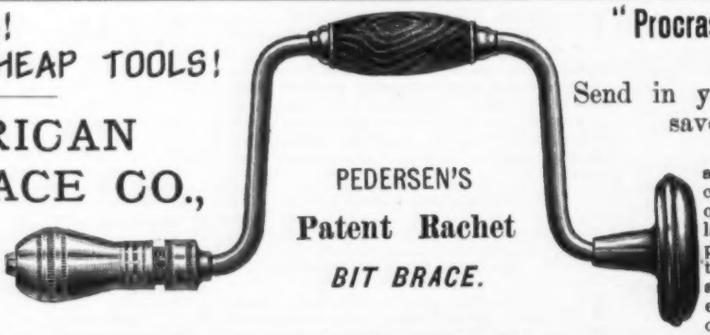

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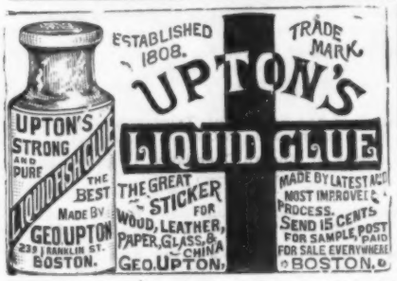

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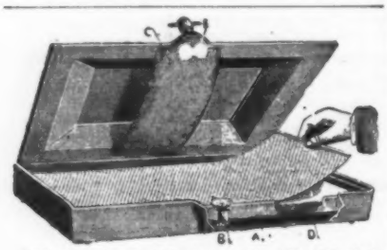

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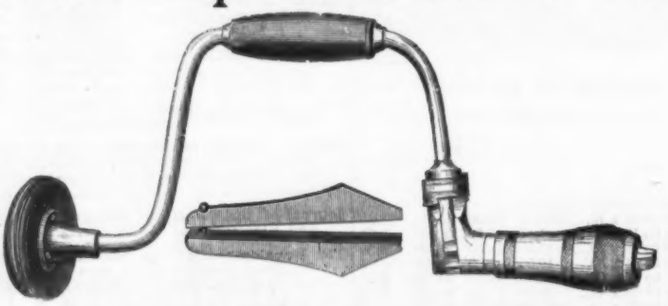

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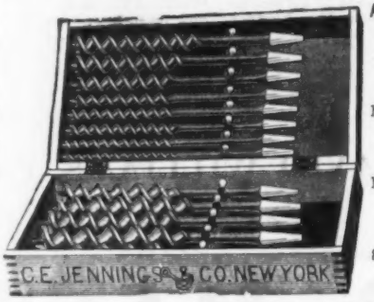

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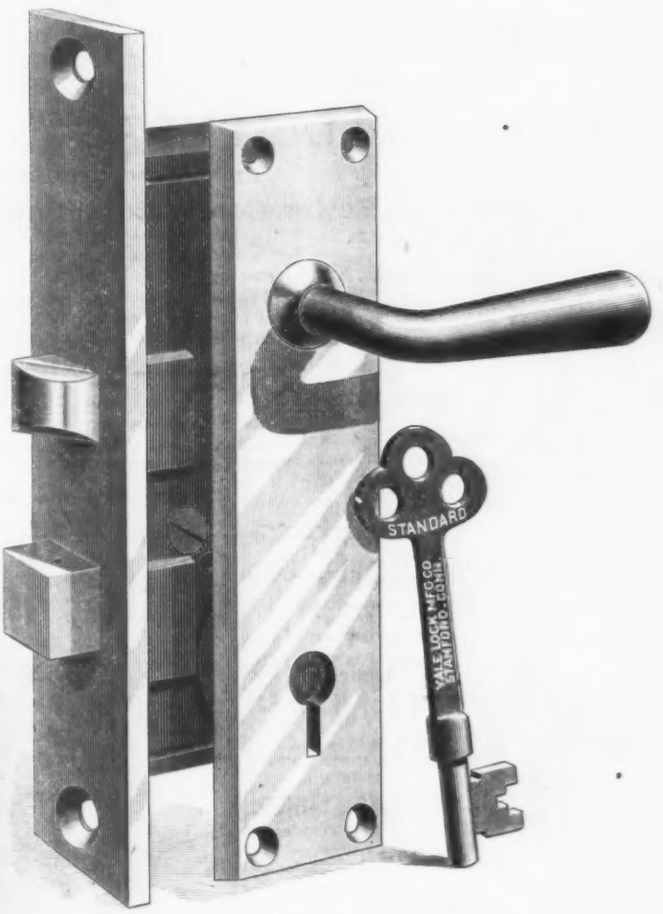

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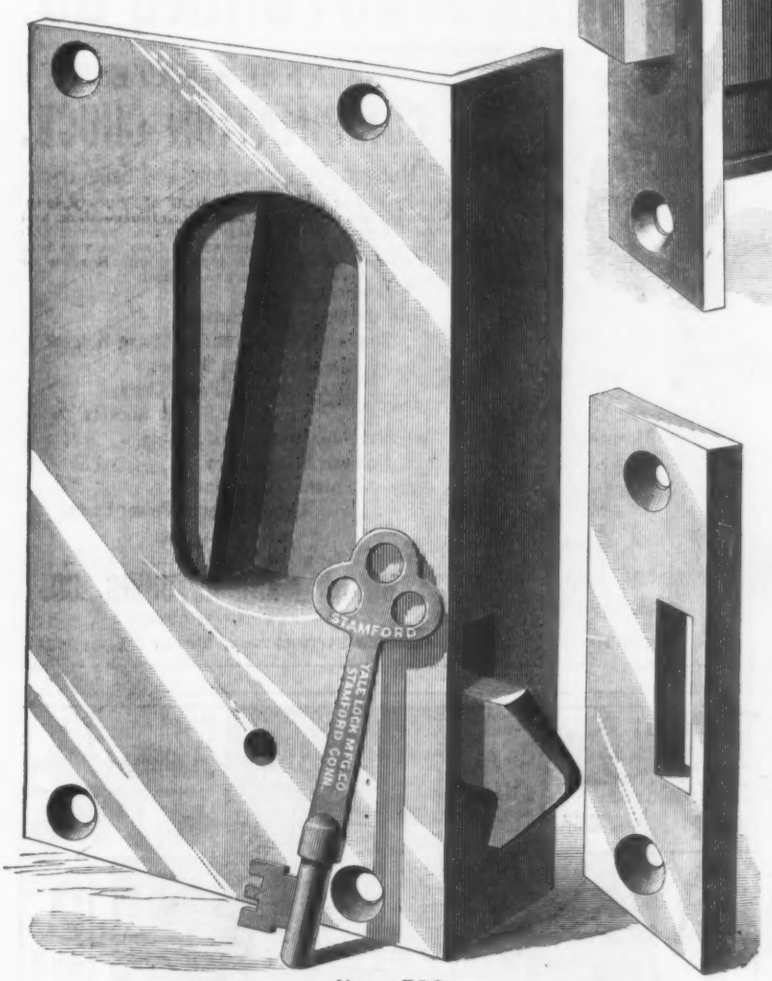

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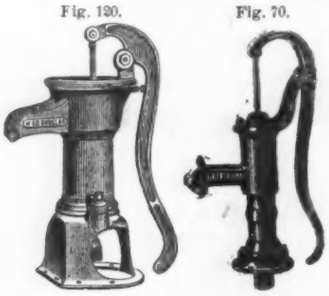

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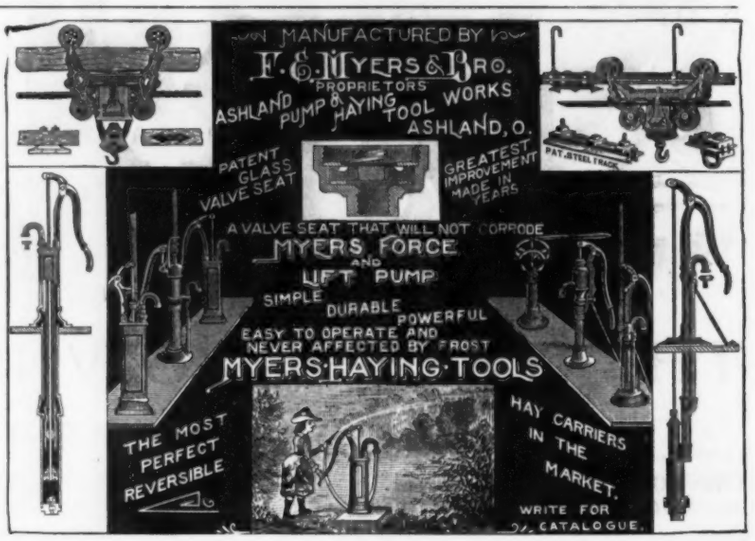

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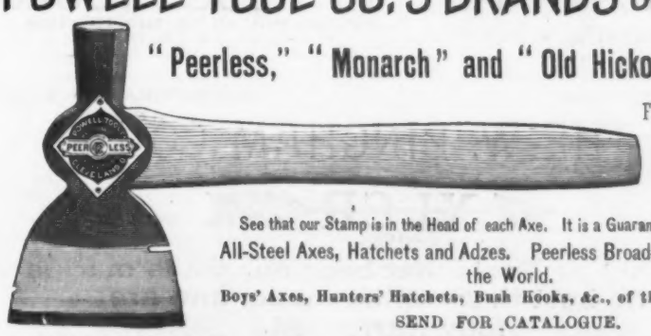

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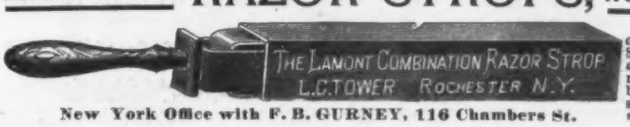

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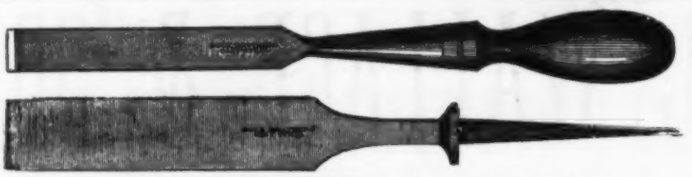

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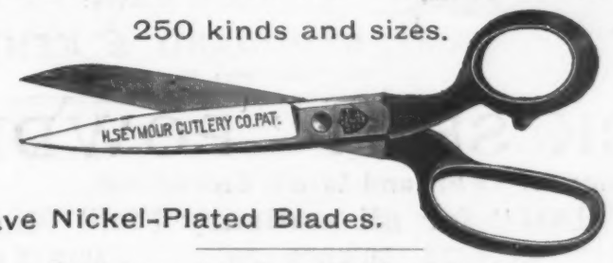

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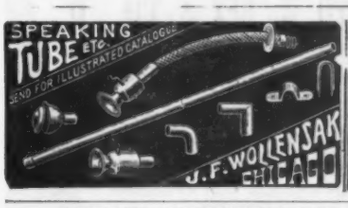

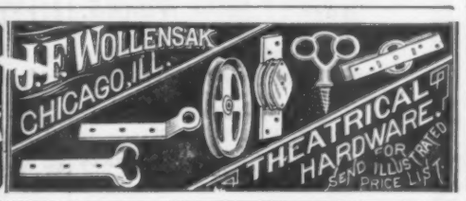

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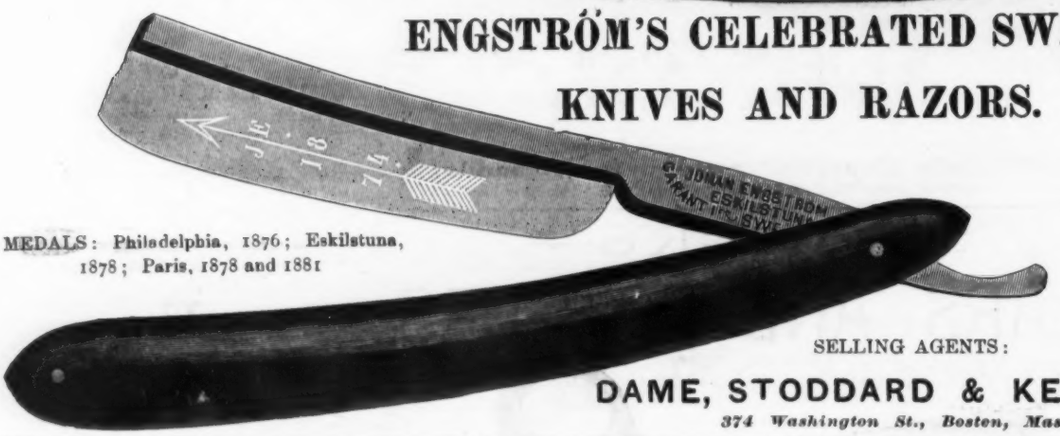

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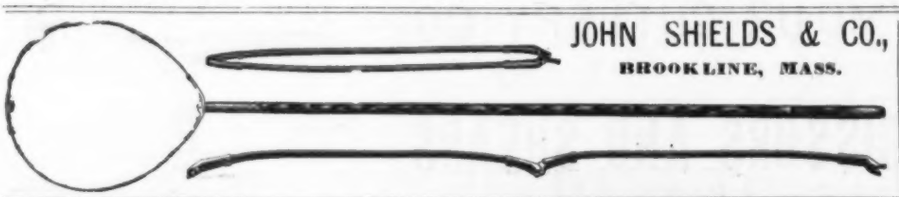

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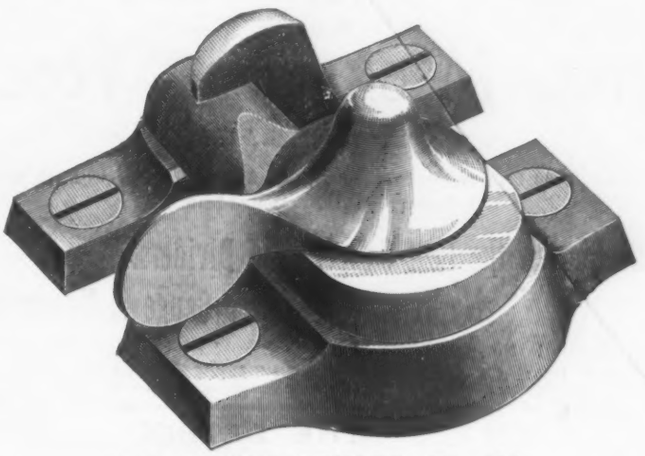

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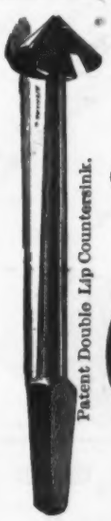

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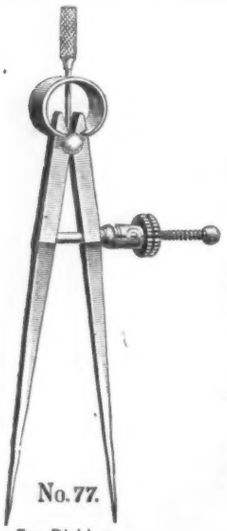

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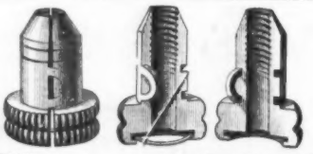

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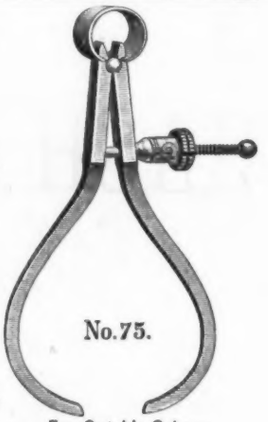

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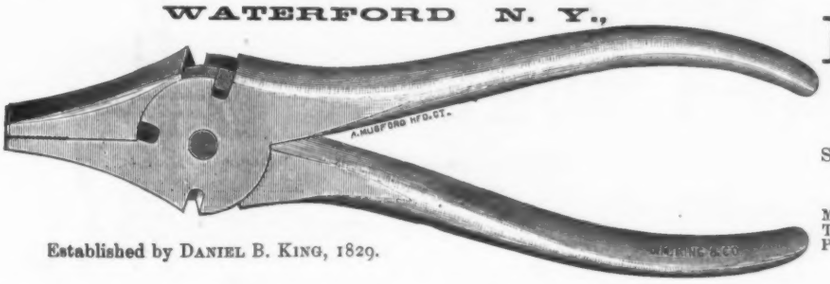

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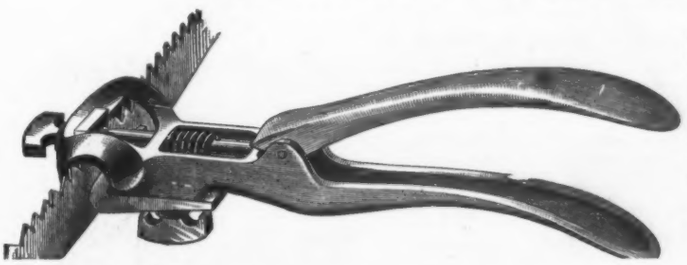

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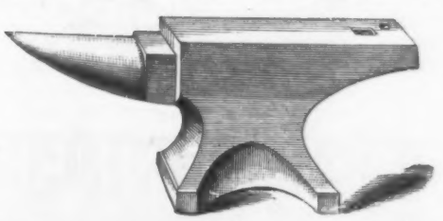

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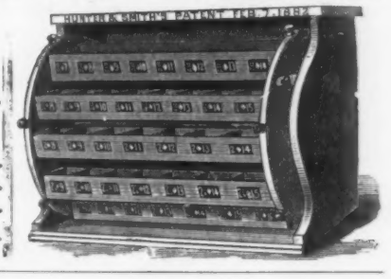

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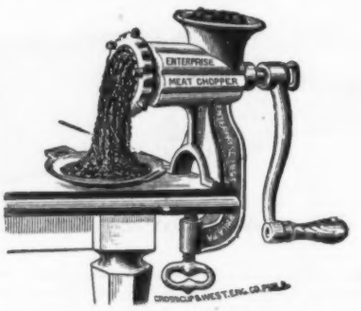

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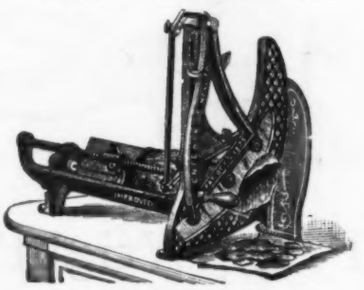

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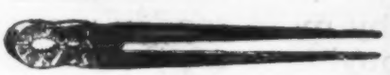

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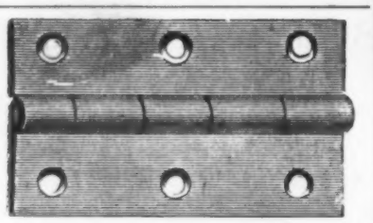

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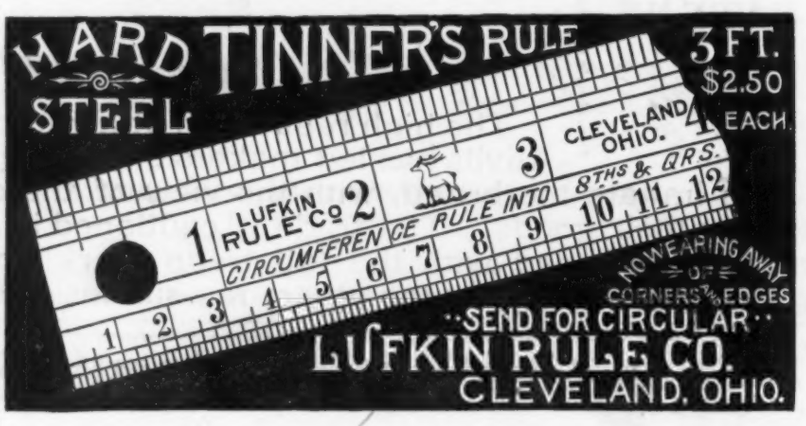

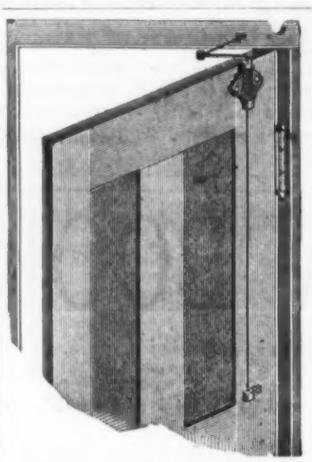

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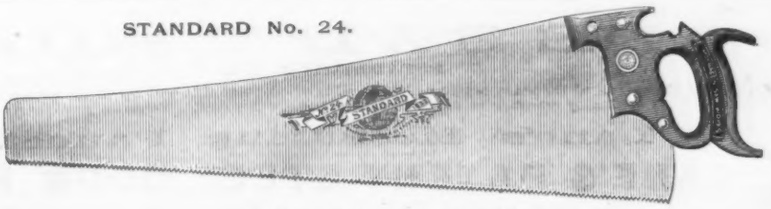

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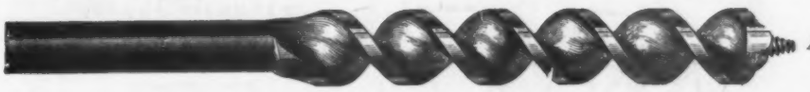

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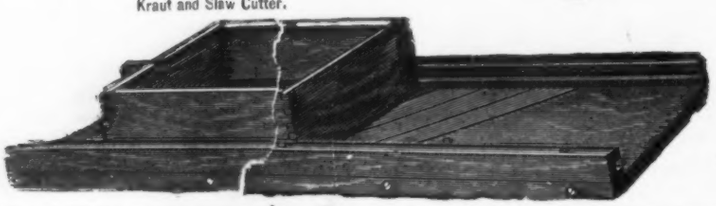

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The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental, and workmanship of the very best. We make more than 30 styles.

Lane's Measuring Faucet.

LANE'S PATENT STEEL DOOR HANGER.

The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. **LANE'S PATENT TRACK** is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

Manufactured by LANE BROS., Poughkeepsie, N. Y.

JOHN H. GRAHAM & CO., General Agents, 113 Chambers Street, NEW YORK.

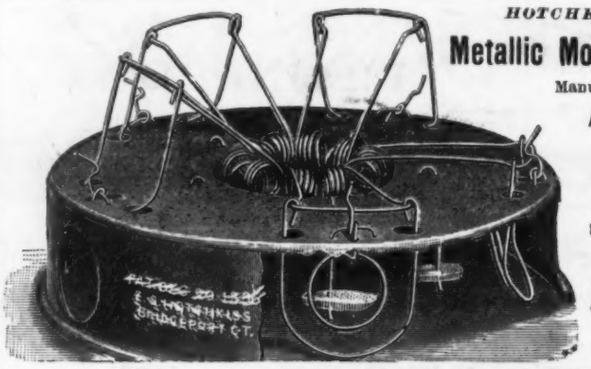
Now is the Time to Order.

"We recommend it for oiling our Mowers. It will not gum."
Graham Emlen & Passmore.
Blair Mfg Co.
Hills Archimedian Lawn Mower Co.
Chadborn & Coldwell Mfg. Co.
Newhall & Stebbins.

A half pint of fine oil hermetically sealed, in an attractive package, ready for use.

MANUFACTURED BY

LOVELL, TRACY & CO.,
71 Asylum Street, Hartford, Conn.
SOLD BY ALL HARDWARE JOBBERS.



HOTCHKISS PATENT

Metallic Mouse & Rat Traps.

Manufactured by
E. S. Hotchkiss,
BRIDGEPORT, CONN.

Both Self-Setting.

Send for Illustrated List. Samples by mail, 15c. and 25c. respectively.

AGENTS
J. H. Graham & Co.,
113 Chambers St,
NEW YORK.

New Union Rat Trap.

The only Practical Self-Setter.

Sample Trap Free

MANUFACTURED BY
Sanford & Hawley, Unionville, Conn.
Knapp & Cowles Mfg. Co Bridgeport, Conn.

COMMON MOUSE TRAPS
BEST FOR USE!

Ripley Mfg. Co., Unionville, Conn.

Porcelain-Lined Lemon Squeezers, Steak Hammers, Boot Jacks, Magnetic Tack Hammers, Mallets, Bung-Starts, Hand Screws, Beacon Hill Pat. Mouse Traps, Sunny-Side 2 lb. Lap-Boards

The F. F. ADAMS CO.,

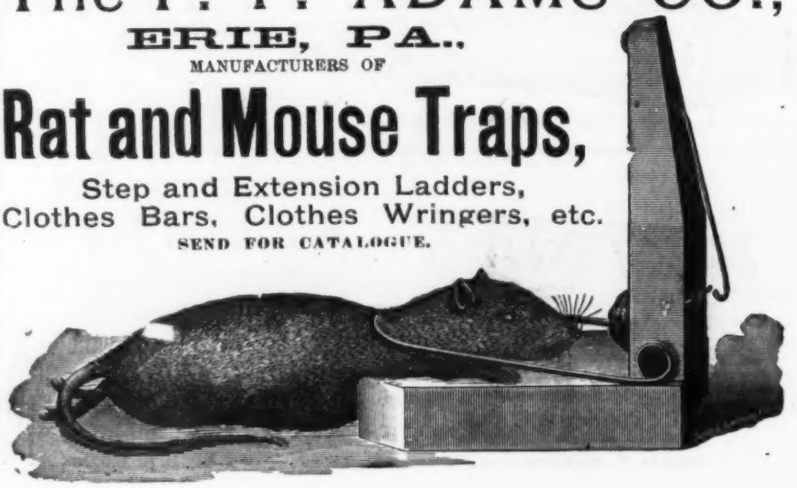
ERIE, PA.,

MANUFACTURERS OF

Rat and Mouse Traps,

Step and Extension Ladders,
Clothes Bars, Clothes Wringers, etc.

SEND FOR CATALOGUE.



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LANCASTER, PA.

All patents sustained by U. S. Courts.

E. T. FRAIM,

Manufacturer of the Celebrated Patent Inter-Locking Tumbler

JAIL PADLOCKS.

The only durable low-priced Scandinavian padlock ever produced, 34 different grades and sizes, all malleable iron. Red, black and bright brown Japanned.

FLAT STEEL KEY LOCKS A SPECIALTY.

Write for New Illustrated Catalogue and Discounts.

TOWER & LYON, GENERAL AGENTS, 95 CHAMBERS STREET, NEW YORK.

WIGGER'S

PATENT SASH LIFTERS

A simple contrivance designed to facilitate the Raising and Lowering of

ONE-LIGHT SASHES.

Nearly all modern buildings are constructed with single-light sashes, the raising and lowering of which is attended with difficulty

The adjustment of the lower sash is especially inconvenient when screens are used.

These Sash Lifters will be found indispensable in overcoming this constant annoyance.

Latching is facilitated, window sticks and hooks done away with, springing the sash and loosening the glass prevented, &c.

Made of a strip of concave-convex metal, with knobs pressed up, and fitting over the bead on the side rail of sashes.

Made in any size from 28 to 44 inches in length.

Sample Cards, Price Lists and Circulars on application.

BRAINERD & CO.

MANUFACTURERS' AGENTS,

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IVES' PATENT. SASH LOCK.

MANUFACTURED ONLY BY

BELL TIP, ORNAMENTAL.

H. B. Ives & Co. NEW HAVEN, CONN.

FISH SASH LOCK

(Liesches' Patent). Cheapest, strongest and only practical Automatic Lock and Holder in the market.

Sales constantly increasing. 1783 gross sold in 1887. Send for latest quotations, 50% reduction. Must sell 5000 gross this year.

J. R. CLANCY, Syracuse, N. Y.

Security Sash Lock

Patented Nov. 9,'86.

Anti- Rattler.

The Claflen Mfg. Co.,

Cleveland, Ohio, S. A., Sole Manufacturers.

THE BOSTON KNOB CO.,

MANUFACTURERS OF FINE DOOR KNOBS,

No. 169 HIGH STREET,

GEO. F. WHITING, (FORT HILL SQUARE.)

President and Manager.

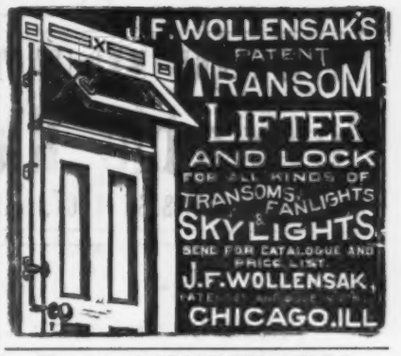
THE peculiar qualities of the Knobs made by the Boston Knob Company are, their great *strength*, *beauty* and *durability*.

Unlike all others, they improve in appearance, while bronze, brass or wooden knobs commence to depreciate as soon as used. The Knobs manufactured by this Company do not require cleaning or polishing.

They are furnished in a variety of colors to harmonize with the finish or decoration of rooms.

They are warranted to wear as long as any knob made. This Company use the *New Boston Spindle*.

Send to the office of the Company for prices, or to any leading wholesale hardware dealer.



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SOLID BRAIDED SASH CORD,

SYLVAN SPRING and SEMPER IDEM.

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Send for Sample and Price List.

ELIZABETHPORT STEAM CORDAGE CO.,

Manufacturers of the Standard

TRADE MARK E

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Also CORDAGE of all Kinds

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AMERICAN FOUNDRY PRACTICE.

By Thomas D. West.

One of the best practical works on the management of cupolas and the melting of iron. Fully illustrated with plans and apparatus. Price, $2.50. ent, postpaid, on receipt of price by

DAVID WILLIAMS, Bookseller and Publisher,

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SAFETY LIP "VICTOR"

Anti-Friction

Steel Door Hanger and Rail

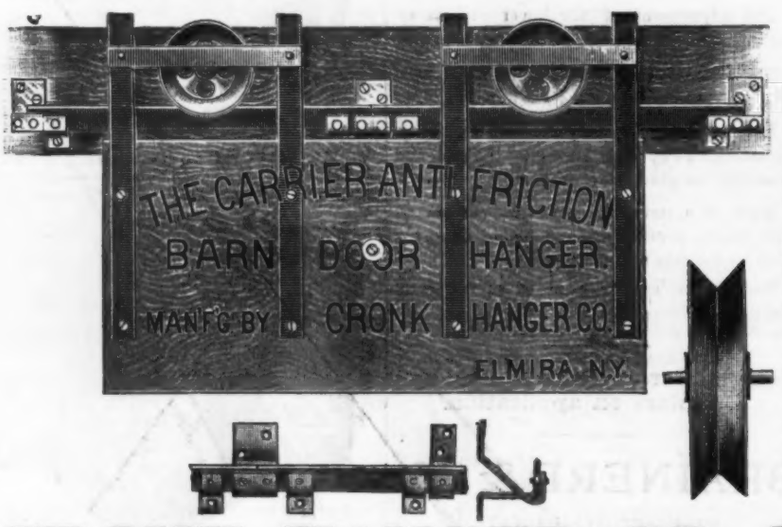
COMPACT. SIMPLE.
CHEAP. DURABLE.

Send for Catalogue.

Dealers using bracket track are requested to try our Steel Moody Hanger and Rail, it being cheaper and as good as any Hanger of this class.

VICTOR MFG. CO..

NEWBURYPORT, MASS.



Carrier's Anti-Friction Steel Barn-Door Hanger.

This hanger is made entirely of Steel (with exception of wheels), which have Steel axles.

The wheels are V shape, thereby preventing any friction, for the reason that the side of the groove cannot touch the track and grind on the edges, as a straight groove would do.

IT CANNOT BE THROWN FROM THE TRACK.

If for any reason the door should be raised, the wheels remain on the track and ready to receive the door when falling back. No oil required—never screeches or grinds, and guaranteed to work easier than any Hanger on the market.

We call special attention to our Double Braced Steel Track (as shown in cut), and which has commended itself to all who have examined its merits, and must become the universal favorite. Can be put up with 1 in. No. 9 screws, each bracket (which are 15 inches apart) sustaining over 1000 lbs. weight, thereby carrying heavy doors with perfect ease.

WRITE FOR PRICES.

CRONK HANGER CO., Elmira, N. Y.

BOLLES, KIMBALL & WILDE, Boston, Mass., Agents for New England States.
J. C. McCARTY & CO., 97 Chambers St., New York, General Agents.

THE IRELAND MANUFACTURING COMPANY, Cincinnati, Ohio, Sole Manufacturers of

Reversible Rabbeted Mortise Door Locks,

THE MORRIS PAT-SASH LOCK. ALSO A GENERAL LINE OF BUILDERS' HARDWARE in all known finishes. Catalogues and lists furnished on application

Broken Sash Cords

—A THING OF THE PAST—

When your windows are hung with

Morton's Cable Chains.

Guaranteed for 10 Years.

Some are now in use 15 years and are as good to day as when put in.

Can be applied wherever cord is used, and without any alteration of pulleys or sashes.

For further particulars address

"THOMAS MORTON,"

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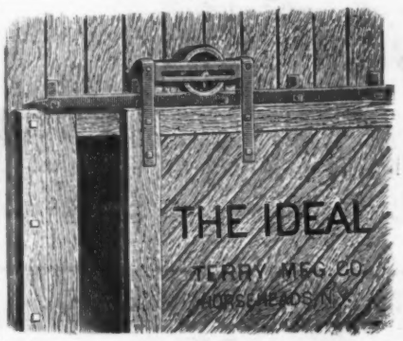


THE IDEAL

STEEL ANTI-FRICTION HANGER.

SURE TO PLEASE THE TRADE.

Works very easy. Is STRONG and combines ALL the BEST Features of an Anti-Friction Hanger.

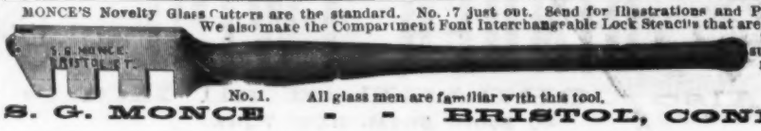
4-inch Wheel, 6 foot Run, $15.00 per doz. prs.
inch " 10-foot " 18.00 " " "

Would be Glad to Quote you Prices.

TERRY MANUFACTURING CO.,

HORSEHEADS, Chemung Co., N. Y.

MONCE'S Novelty Glass Cutters are the standard. No. 7 just out. Send for Illustrations and Prices We also make the Compartment Font Interchangeable Lock Stencils that are having such a run.



No. 1. All glass men are familiar with this tool.

S. G. MONCE - - BRISTOL, CONN.

WHEN your Salesmen are Selling a bill of Hardware Trimmings

HAVE

them call attention to

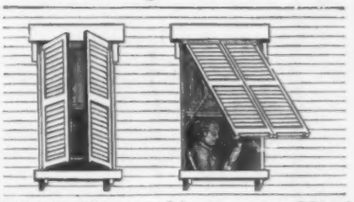
F. O. NORTH & CO.,

SOLE PROPRIETORS AND MANUFACTURERS,

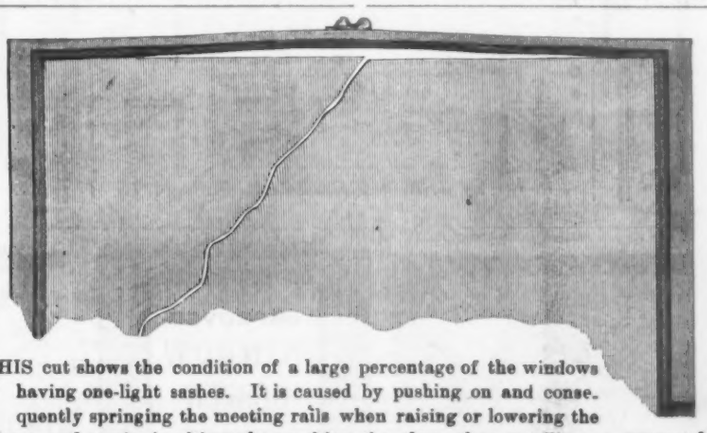
BOSTON, MASSACHUSETTS.

W. H. JACOBUS & CO., 90 Chambers St., New York. MARKLEY, ALLING & CO., Chicago, Ill.

The "AUTOMATIC" Blind Awning Fixture.



Attachable to old or new blinds. They ventilate and cool the room, giving free circulation of air and refreshing shade, and do not interfere with the ordinary use of the blinds. Sold by the hardware trade.



THIS cut shows the condition of a large percentage of the windows having one-light sashes. It is caused by pushing on and consequently springing the meeting rails when raising or lowering the windows, and results in ultimately cracking the glass, thus entailing an expense for repairs greater than the cost of applying Wigger's Patent Sash Lifters. These Sash Lifters obviate this trouble and also prove a great convenience in operating this class of windows, as previously described in the columns of *The Iron Age*.

The steadily increasing demand for these goods proves their utility, and also that both Architects and their Clients appreciate their merits, and that many Architects have specified them on buildings to be completed this fall. We shall be pleased, therefore, to send samples, sample cards and circulars (with blank space for dealers' name), on application, as the goods will be supplied exclusively through the Builders' Hardware Trade.

WRITE FOR PRICE LISTS, &c.

BRAINERD & CO.,

MANUFACTURING AGENTS,

97 Chambers St., New York.

E. W. GILMORE & CO.,

NORTH EASTON, MASS.

Strap and T Hinges,

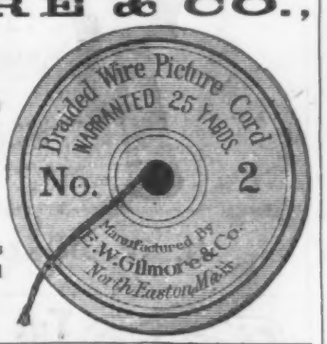
CRATE HINGES AND HASPS,

Ship Scrapers, Iron Washers.

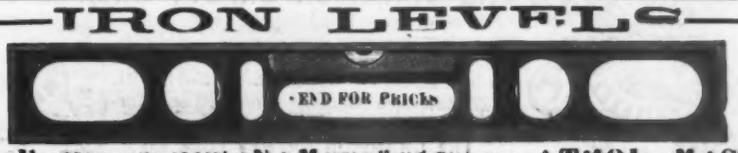
BRAIDED WIRE PICTURE CORD,

Tinned, Gilt and Gold, put up in small round boxes of 25 yds. and 25 feet, warranted full length; cord pulled out through hole in center of box.

SEND FOR PRICES.

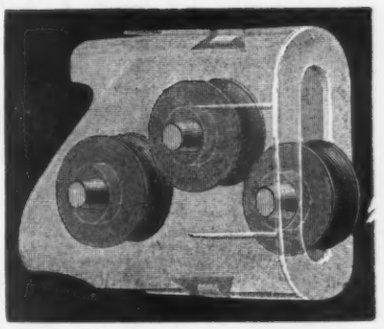


IRON LEVELS



C. F. RICHARDSON, Manufacturer, ATHOL, MASS.

IDEAL SASH PULLEYS.



From two to six of the Ideal can be applied to one of any other make on the market. A great saving of time and money to contractors and carpenters Marking Gauges furnished with each lot of pulleys. Send for circular and price.

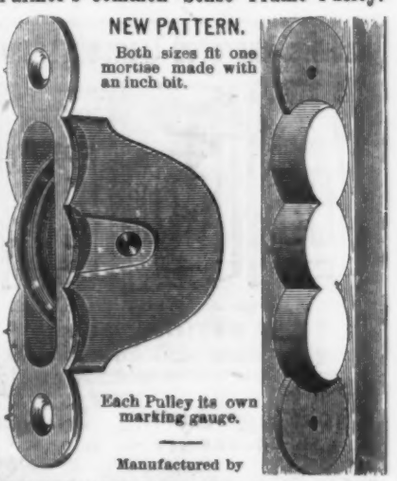
STOVER MFG. CO.,

Freeport, Ill.

Palmer's Common Sense Frame Pulley.

NEW PATTERN.

Both sizes fit one mortise made with an inch bit.



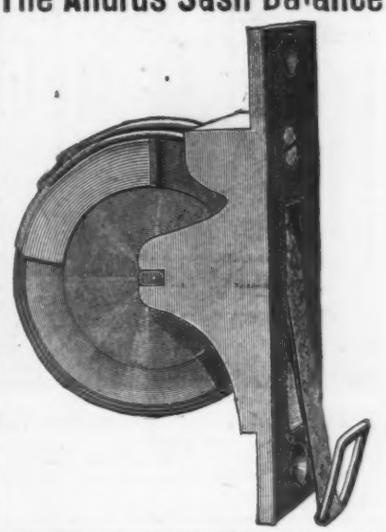
Each Pulley its own marking gauge.

Manufactured by

PALMER HARDWARE MFG. CO., Troy, N. Y.

Sole Eastern Agts., Peabody & Parks, Troy, N. Y.

The Andrus Sash Balance



The only perfected balance for sash that can be regulated with a brake to carry sashes of various lengths and weights It is no more expensive than weights and cords and much less for heavy windows. It is equally adapted to new or old windows. Send for circular of Andrus Sash Balance and Rose Ventilating and Sash Locks. &c.

WM. H. CALDWELL,

Successor to ANDRUS MFG. CO.,

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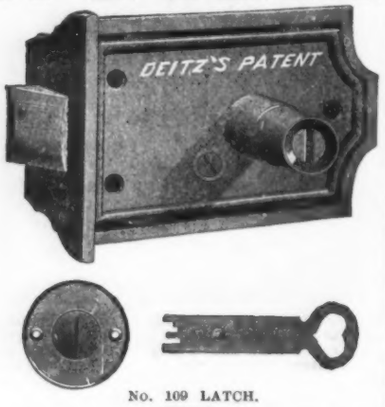
A. E. DEITZ.

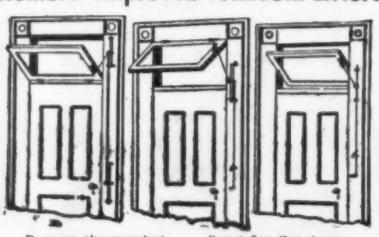


No. 109 LATCH.

J. C. McCARTY & CO., Agents,
97 Chambers and 81 Reade Sts.,
NEW YORK.

Factory, BROOKLYN, E. D., N. Y.

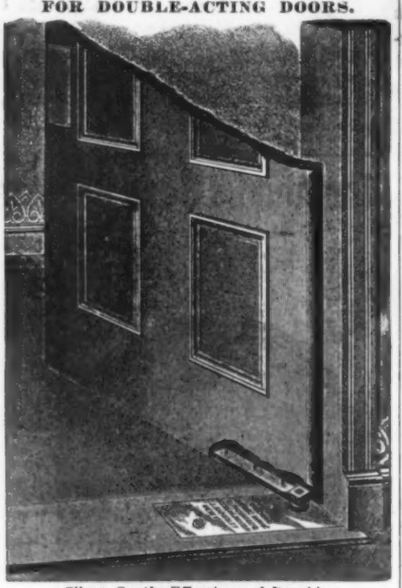
Reihers' Improved Transom Lifters



Best in the market. Send for Catalogue.

F. A. REIHER, Mfgr.,
11 and 13 S. Canal St., - CHICAGO, ILL

Checking Spring Hinges
FOR DOUBLE-ACTING DOORS.

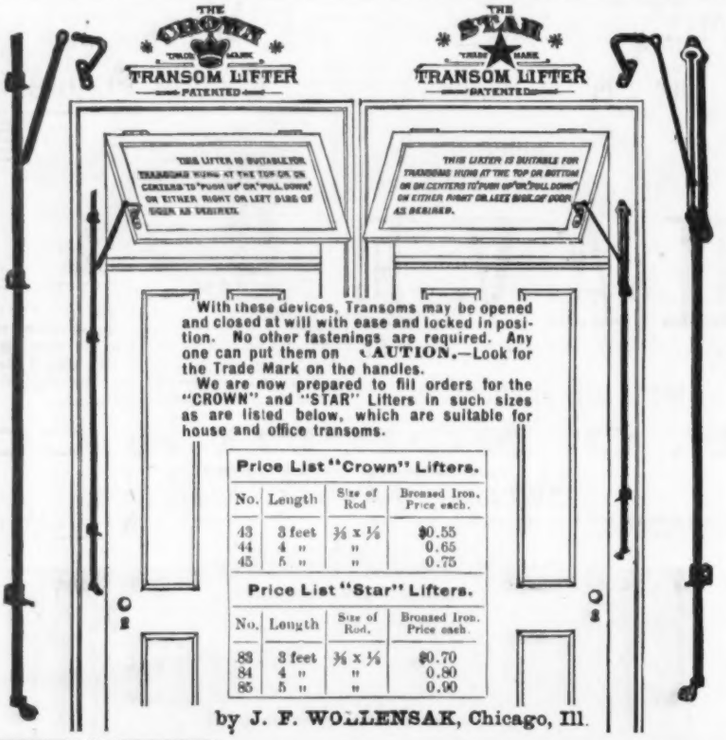


Silent, Gentle, Effective and Durable.

J. BARDSLEY, 59 Elm Street, New York.
—AND—
YALE & TOWNE MFG. CO.,
New York, Boston, Philadelphia and Chicago.

SHUT YOUR BLINDS

by using our "Worker," which opens or closes them without opening the window. They can be procured at any hardware store or by sending to DODD SHUTTER WORKER CO. No. 26 Church St., N. Y. Agents wanted.



With these devices, Transoms may be opened and closed at will with ease and locked in position. No other fastenings are required. Any one can put them on. CAUTION.—Look for the Trade Mark on the handles.

We are now prepared to fill orders for the "CROWN" and "STAR" Lifters in such sizes as are listed below, which are suitable for house and office transoms.

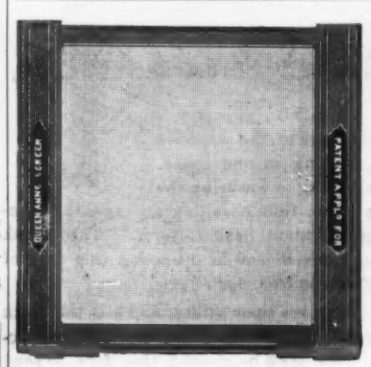
Price List "Crown" Lifters.

No.	Length	Size of Rod	Bronzed Iron, Price each.
43	3 feet	⅜ x ½	$0.55
44	4 "	"	0.65
45	5 "	"	0.75

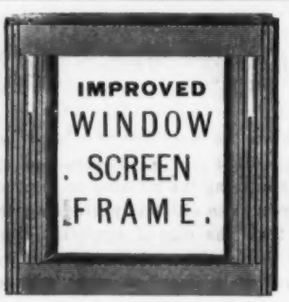
Price List "Star" Lifters.

No.	Length	Size of Rod.	Bronzed Iron, Price each.
83	3 feet	⅜ x ½	$0.70
84	4 "	"	0.80
85	5 "	"	0.90

by J. F. WOLLENSAK, Chicago, Ill.



This is a new departure in adjustable screens and is free from many objections found in others. It is **the only double** face screen, and equally well finished on both sides. It has a box panel, and can be adjusted without the friction noticeable in all other adjustable screens.



The Side Sticks are ⅞ x 2 inches. End ⅞ x 1 inch. Stained Imitation Black Walnut.

Each Set is composed of Frame Slide and Strips to tack over wire.

These Frames are beaded and are slit 6 inches on one end to facilitate fitting to any window, by cutting if necessary.

These Sides are grooved the entire length, doing away with necessity of cutting grooves in end of top and bottom sticks as in other makes.

Corner and Sticks
FOR
WINDOWS
AND
DOORS.

—:o:—

QUEEN ANNE SCREEN CO.,
Burlington, Vt.
MANUFACTURERS.

—:o:—

J. H. GRAHAM & CO.
113 Chambers St.,
NEW YORK,
GENERAL AGENTS

THE PEERLESS
RUBBER WINDOW CLEANER

8 inch, per doz	$4.20	14 inch, per doz	$6.00
10 inch, "	4.80	16 inch, "	7.50
12 inch, "	5.40	18 inch, "	9.00

LIBERAL DISCOUNT TO THE TRADE.

We are the largest manufacturers of **Weather Strips** in the United States. Also manufacturers of **Rubber Floor Scrubbers,** and **Rubber Counter and Bar Cleaners.**

We own all the Patents. Beware of Infringements.

Our Peerless Window Cleaner is made of Hard Wood, Oil Finish and has the Improved Drip Catcher.

D. W. BOSLEY & CO., Chicago, Ill.

HALF SIZE.
Pat. Nov. 15, '87.

THE CHAMPION SAFETY SASH LOCKS.

These locks are being received with universal and enthusiastic approval by Architects, Builders, and Hardware Dealers everywhere. All bear testimony to their unequalled merits.

☞ Salesmen wanted.—For further information, address the sole manufacturers,

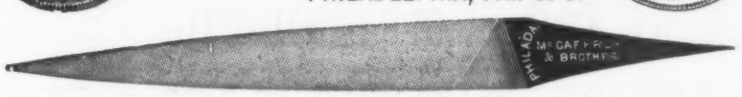
THE CHAMPION SAFETY LOCK CO.,
106 & 108 Canal St., CLEVELAND, OHIO.

BLACK DIAMOND FILE WORKS.

G. & H. BARNETT,
21 to 43 RICHMOND STREET, - - - PHILADELPHIA.

Paris, 1878. *For Superiority.*

McCAFFREY & BRO.,
PENNSYLVANIA FILE WORKS,
PHILADELPHIA, PA., U. S.



Manufacture and keep in stock a full line of **FILES** and **RASPS** only, for which we claim special advantage over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade.
Superiority acknowledged wherever used, sold or exhibited.

EXCLUSIVELY **HAND-CUT** FILES and RASPS
MANUFACTURED BY THE
CHELSEA FILE WORKS, NORWICH, CONN.

The superiority of our Horse Rasps over all others is universally admitted by those who use them, and their high degree of excellence will be scrupulously maintained. Give them a trial, and use no others.

CHARLES B. PAUL, MANUFACTURER OF HAND CUT FILES,
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All descriptions of Files made to order. Price List mailed on application. Established 1863.

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THE NEWEST BOOKS ON Iron, Steel and Metallurgy; Mining, Mechanical and Civil Engineering; Casting and Founding; Electricity and Electric Lighting, promptly supplied on receipt of price by
DAVID WILLIAMS, 66 & 68 Duane St., New York.

"REGULAR GAUGE" FOR
Flouring Mills, Grain Elevators, &c.
"Extra Heavy" for handling Ores, Coal, Broken Stone, &c.
SEND FOR ILLUSTRATED PRICE LIST.
W. J. CLARK & CO., Sole Manufrs.,
SALEM, OHIO.

THE BUCKELL SAFETY CLEVIS.

FOR SALE BY THE HARDWARE TRADE.
Cheaper, Safer, More Simple and Durable,
THAN ANY CLEVIS MADE.
Have been in use five years and given entire satisfaction. Made in all styles and sizes, and much improved. Ask your dealer for them, or address
WHITFIELD & JACOBS,
SOLE MANUFACTURERS. PONTIAC, MICH.

THE JETTER MF'G CO.
SCREW DRIVERS FILES WROUGHT GOODS
BUFFALO, N.Y.

40 CHAMPION LOCKS.
See Iron Age, March 1st, page 87.
Send for Illustrated Catalogue No. 7, with discounts to the Hardware Trade.
Address Miller Lock Co., Manuf'rs.
PHILADELPHIA.

NICHOLSON FILE CO.,
Providence, R. I.

MANUFACTURE

Nicholson Files.
Extra [XF] Fine Files.
"Double Enders."
File Cards.
File Brushes.
Bent Rifflers.
Machinists' Sempers.
Surface File Holders.
Vise File Holders.
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Horse Rasps, "Racer."
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Butchers' Steels, Regular.
Butchers' Steels, Patent.

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The magnitude, variety and excellence of this Company's product places it at the head of File Manufacturing the World over.

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MONTGOMERY & CO.,
IMPORTERS OF
Stubs' Files, Tools & Steel,
GROBET SWISS FILES,
Chesterman's Tapes, Rules, &c.,
HORSE SHOE MAGNETS.
Hubert's French Emery Paper,
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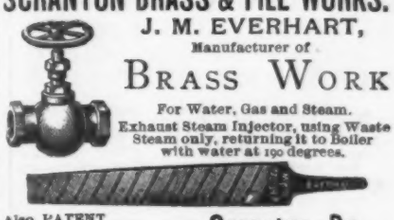

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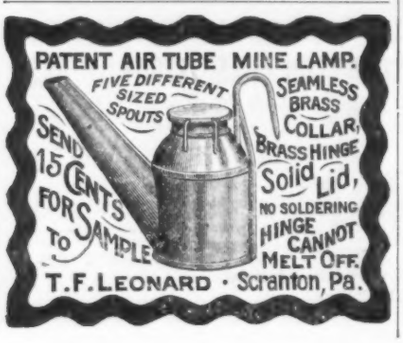

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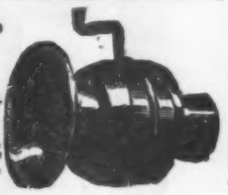

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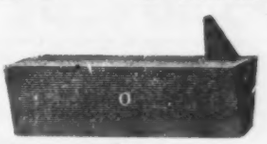

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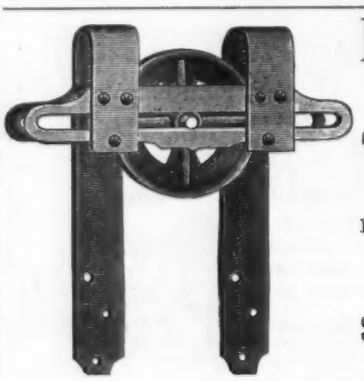

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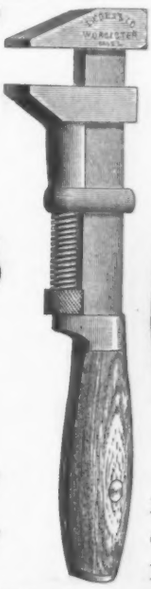

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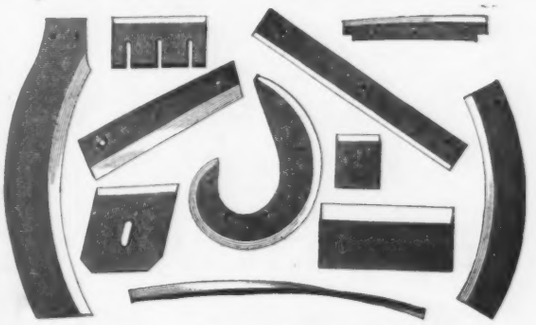

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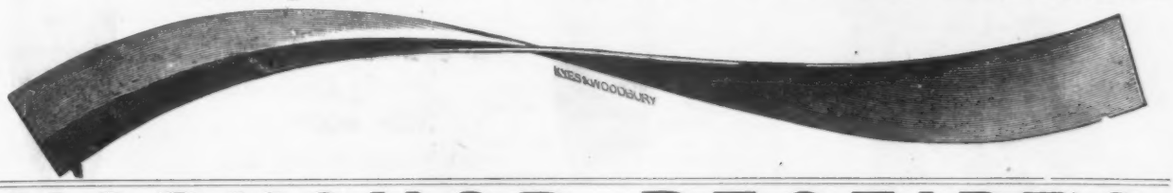

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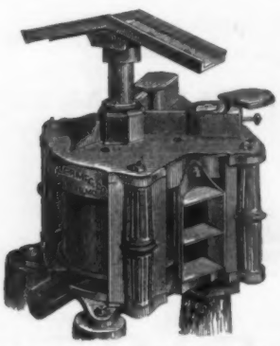

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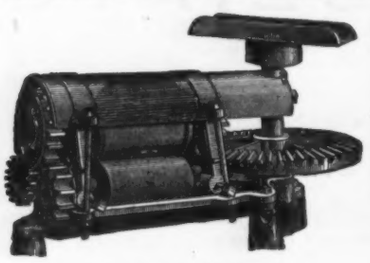

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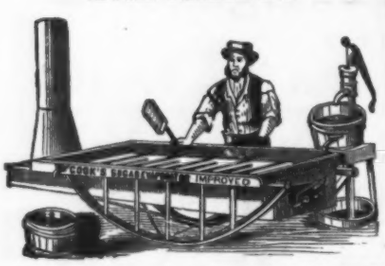

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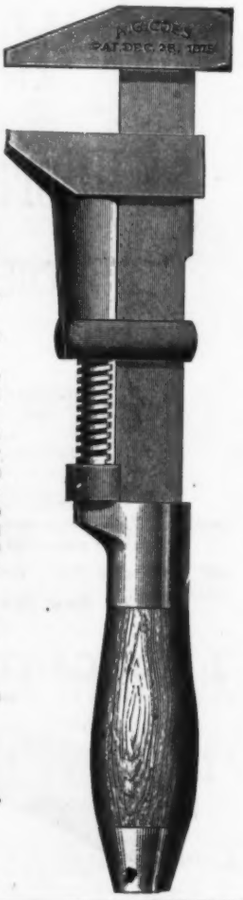

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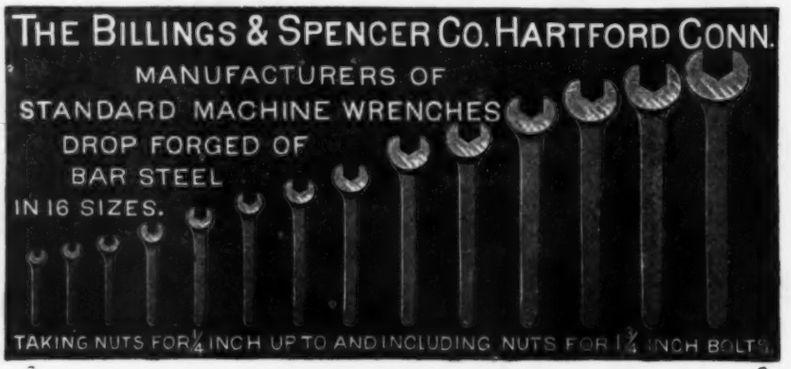

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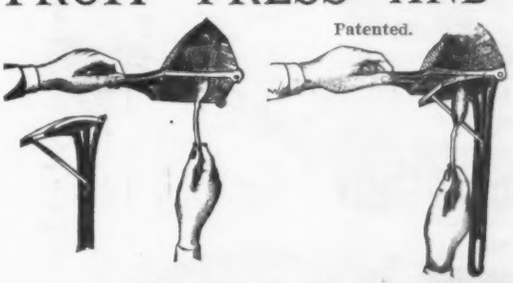

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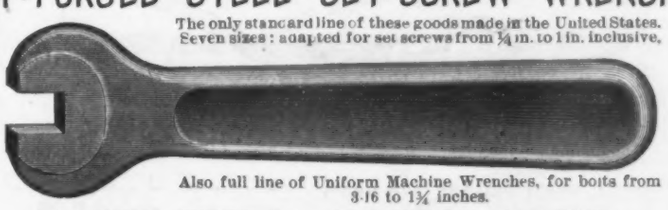

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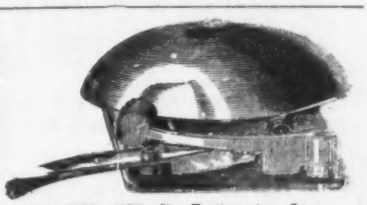

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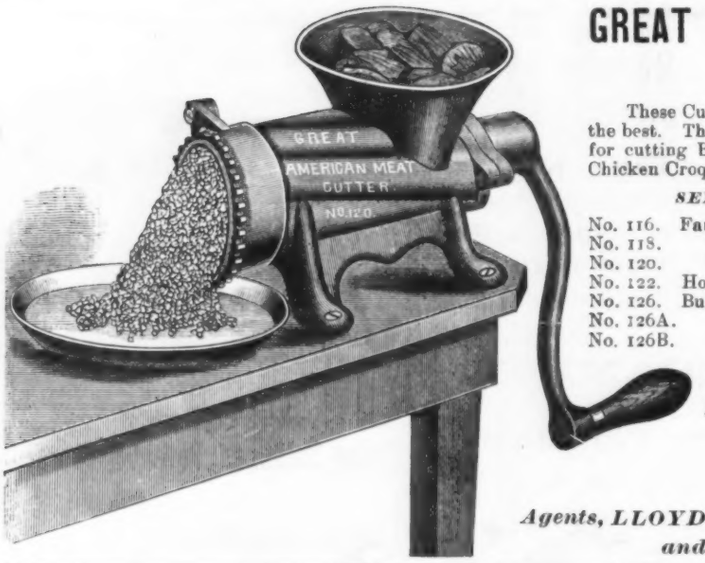

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The Springs on this Butt are annexed to a single three-leaved Butt, instead of two three-leaved Butts, as in the Chicago.

The strength of the Butt our only limit to size of Spring.

DOORS.	4 Japan'd Pair	4½ Jpd. N. Sg. Pair	24 Nkl Ptd Pair	34 Fr. Pt. Pair	44 Bronze Pair
¾ to 1¼ in.	$1.00	$1.30	$ 2.70	$ 2.70	$ 8.00
1 to 1¾ in.	2.00	2.75	5.00	5.00	13.00
1¼ to 2 in.	4.00	5.00	7.50	7.50	20.00
2 to 2¾ in.	6.50	7.25	10.00	10.00	27.00
2¼ to 3 in.	8.50	9.50	13.00	13.00	35.00

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"Volunteer" Double Cog Wringer

Best Adhesive Rubber Rolls.

Use No Oil or Grease.

Unequalled for Strength and Durability.

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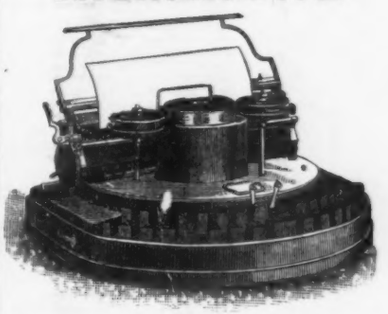

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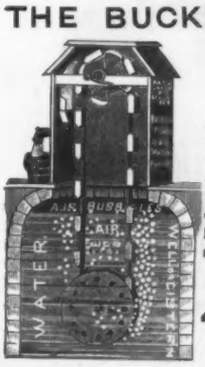

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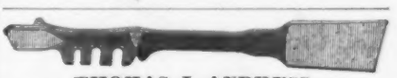

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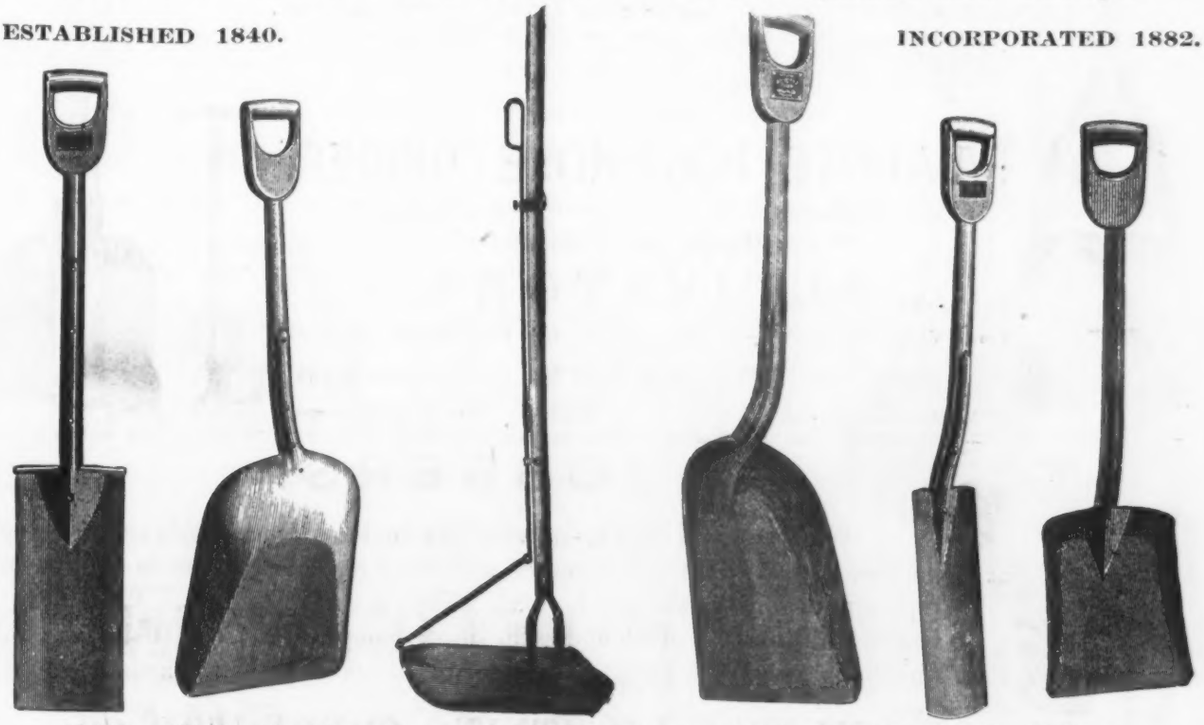

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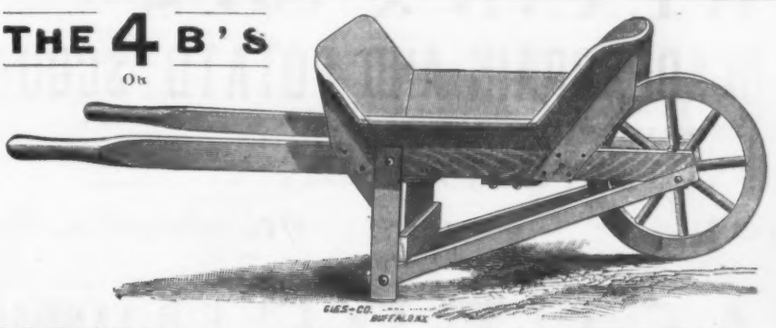

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Cheapest and Best in Use.

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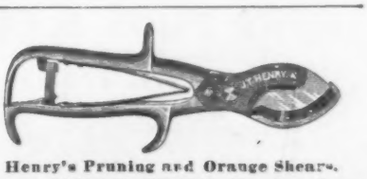

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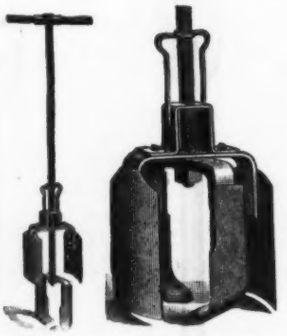

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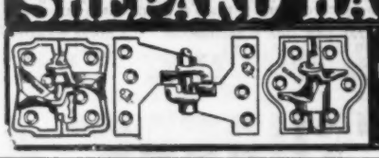

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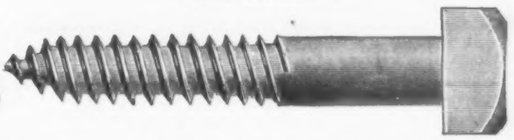

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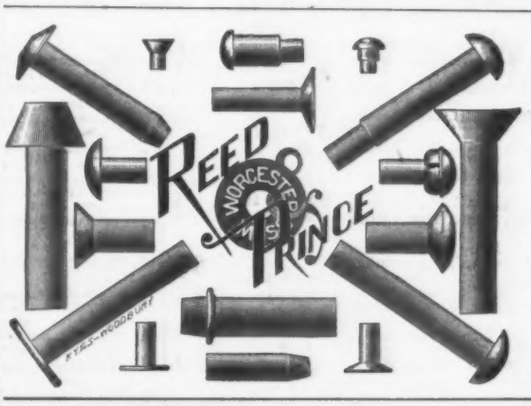

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COFFEE,	7 in.				
Bailed and	8 "				
Copper Bottom.	9 "				

DESCRIPTION AND PRICES.

Card No.		Size and Price per Card.
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18	A—**Hinges.** Strap, Light and Heavy. T, Light, Heavy and Extra Heavy. Hinge Hasps, Screw Hook and Strap. B—**Screw Hook and Eye Hinges.** Barn Door Hangers. Checked Back. Kidder's, Anti-Friction, Wrought Frame. Barn Door Stay Rollers, Rail, Pulls, Latches. Sliding Door Rail.	3x13½ in. 30 Cts.
19	A—**Wrought Butts.** Narrow, Loose Pin, Light Inside Blind. B—**Loose Pin Butts,** Plain, Japanned and Plated Tips.	3x13½ in. 30 Cts.
20	A—Loose Joint Butts, Plain, Japanned and Plated Tips. B—Table Hinges, Bronzed Iron Blind Butts. Brass Butts, Narrow, Middle, Broad and Desk. Width when open, given of all.	3x13½ in. 30 Cts.
21	A—Door Bolts, Barrel, Square Spring, Foot, Chain. B—**Door Bolts,** Flush, Neck and Miscellaneous kinds.	3x13½ in. 30 Cts.
22	A—**Screw Drivers,** Flat and Round Blade, Ratchet, Clark's. Screw Driver Bits. Countersinks, Reamers', Belt or Saddlers' Punches. B—**Rules. Wrenches.**	3x13½ in. 30 Cts.
23	A—**Hooks,** Coat and Hat, Wardrobe, School-house, Harness, Clothes-line. B—**Shelf Brackets. Drawer Pulls.**	3x13½ in. 30 Cts.
24	A—**Wood Planes.** Plane Irons, Cut and Double. B—**Patent Planes.** Patent Plane Irons.	3x13½ in. 30 Cts.
25	A—**Woodenware and Baskets.** Alphabetically arranged. B—**Woodenware** (contd.) Alphabetically arranged.	7x22 in. 60 Cts.
26	A—**Pieced Tinware.** Alphabetically arranged. B—**Stamped Tinware.** Alphabetically arranged.	7x22 in. 60 Cts.
27	A—**Japanned Tinware.** Alphabetically arranged. B—**Granite or Agate Ironware.** Planished Ware. Stove and Hollow Ware. All Alphabetically arranged.	7x22 in. 60 Cts.
28	A—**Mortise Door Locks,** Latches, Knobs and Escutcheons. B—**Rim Door Locks,** Latches, etc.	7x22 in. 60 Cts.
29	A—**Padlocks,** Japanned, Wrought Iron, Bronzed Iron, Brass and Jail. B—**Complete Comparative List of Corresponding Numbers of Padlocks,** Mallory, Wheeler Co., Wm. Wilcox Mfg. Co., Russel & Erwin Mfg. Co., Norwich Lock Mfg. Co., Nimick & Brittain Mfg. Co. Revised to July, 1885.	6½x22½ in. 60 Cts.
30	A—**Cabinet Locks,** Drawer, Chest, Cupboard and Trunk. Cabinet Keys. B—**Complete Comparative List of Corresponding Numbers of Cabinet Locks,** Eagle, Corbin, Parker, Gaylord. Revised to July, 1885.	7x24 in. 60 Cts.
31	A—Length and number of Nails to the pound. Number of feet in a bundle of Hoop, Scroll and Band Iron. Number of feet of Wire in a pound. Coil or Cable Chain, weight per 100 feet and proof in tons. Bright Coil and Halter Chain and corresponding No. of Wire. Sash weights and line required for common sized window. B—**Miscellaneous Tables.** Showing Nnmber of Copper Rivets and burs in a pound. Size of Skates compared with Shoes. Scale Beams, poise or weight needed for each. Brass Kettles, size, weight and capacity. Strap and T Hinges, weight and number packed in a barrel. Comparative Nos. of leading makers of Rules and Levels. Revised to July, 1885. Manilla Rope, feet in a pound weight of coils, breaking strain, etc.	6x22 in. 60 Cts.
32	Is adapted for filling in with any line of goods. It is ruled both sides with columns headed respectively—"Description," "Size or No.," "List," "Cost," "Job," "Sell."	4x14 in. 20 Cts.
33	As No. 32, but half size, for *smaller* lines of goods.	4x7 in. 10 Cts.
34	A—**Wire Nails,** Exact Size Cuts. B—**Wire Nails,** List Prices and Number in a pound.	5½x9½ in. 30 Cts.
35	A—**Gas Pipe,** Black and Galvanized. List Prices, Weight per foot and number threads per inch of screw. Also Malleable Pipe Fittings *illustrated*. B—Is ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 30 Cts.
36	A—**Tin Plates and Metals.** Sizes of Tin, Number of Sheets in Box, Weight and Gauge. Block Tin, Lead, Solder, Antimony, Slab and Sheet Zinc. B—**Sheet Iron and Copper.** Iron, Common, Smooth, Galvanized, American and genuine Russia. **Copper,** Sheathing, Planished and Copper Bottoms and Soldering coppers.	5½x9½ in. 30 Cts.
37	A—**Malleable Iron.** *Illustrated.* Whiffletree Ferrules. Tongues, Hooks, Couplings and Plates. T and Shaft Irons. Shaft, Body, Perch and Neck-yoke Loops. B—**Malleable Iron.** *Illustrated.* Pole and Neck-yoke Tips. End or Tail Board Plates. Washers and Nuts. Stake Rings and Irons. Wagon Box Spring Irons. Check and Footman Loops. Corner Irons. Spring and Axle Blocks.	5½x18 in. 40 Cts.
38	A—**Malleable Iron.** *Illustrated.* Axle Yokes. Wear Irons. Wrenches. Carriage Rim Bands. Oar or Row Locks. B—**Malleable Iron.** *Illustrated.* Step Plates, Carriage, Wagon and Cutter Steps. Thumb Nuts. Sand Bands.	5½x18 in. 40 Cts.
39	A—**Handles.** *Illustrated.* Auger, Cross-Cut Saw, Axe, Adze, Hatchet, Hammer, Pick, Sledge. B—Is ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 30 Cts.
40	A—**Wire Cloth and Netting.** *Illustrated.* Plain, Painted and Galvanized. B—Is ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 30 Cts.

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(See Alphabetical Index, Page 88.)

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Hoes.
Bateman, E. S. & F., Spring Mills, N. J.

Hog Ringers.
Chambers, Bering & Quinlan Co., Decatur.

Hoisting Machines.
Box Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty, N. Y.
Energy Mfg. Co., Philadelphia, Pa.
Harrington E., Son & Co., Phila.
McCoy & Sanders, 26 Warren, N. Y.
Morse, Williams & Co., Phila.
Sellers Wm. & Co., Phila. and N. Y.
Teal Hoist Co., Philadelphia.

Horse Nails. *Makers of.*
Essex Horse Nail Co., Essex, N. Y.
National Horse Nail Co. Vergennes.

Horse Shoes. *Makers of*
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa.

Hydrants, &c.
McLean John, N. Y.

Hydraulic Jacks.
Dudgeon Richard, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.

Indurated Fibre Ware
Union Indurated Fibre Co., N. Y.

Injectors.
Aller, Amos, 109 Liberty, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron. *Manufacturers' Agents.*
Cox Justice, Jr., & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Hoffman J. W. & Co., Philadelphia.
Levis Henry & Co., Philadelphia.

Iron. *Manufacturers of.*
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, O.
Montour Iron & Steel Co., Danville.
Moorhead-McCleane Co., Pittsburgh, Pa.
Passaic Rolling Mill Co., Paterson
Phoen'x Iron Co., 410 Walnut, Phila.
Pottstown Iron Co, Pottstown, Pa.
Troy Steel and Iron Co., Troy, N. Y.
Whitney A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philp C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Etting Edward J., Philadelphia, Pa.
Walbaum W. H. & Co., Philadelphia, Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia.
Horan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia.
Mohr J. J., 430 Walnut, Phila.
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila., Pa,
Hart, Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co., Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 100 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig, *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet. *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O.

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 407 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Wast, Foos & Co., Springfield, O

Lawn Sprinklers.
McGowan, John H. & Co., Cincinnati, O.

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. F., Athol, Mass.

Lightning Rods.
Munson Lightning Conductor Co., Indianapolis, Ind.

Locks and Knobs. *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Ireland Mfg. Co., Cincinnati, O.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co., Bridgeport.
Quackenbush, Abram, New York.
Yale & Towne Mfg. Co., Stamford

Machinery.
Adt John & Son, New Haven, Conn.
Barnes W. P. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Brettell & Wilson, Rochester, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Bullard, E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank, D. R., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray's Ferry Fd'y & Boiler Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge, Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Nicholson & Waterman, Providence, R. I.
Pedrick & Ayer, Philadelphia, Pa.
Prybil P., 407 W. 40th, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers Wm. & Co., Phila.
Snell, Henry L., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. Fd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co. Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. & Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y. Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Meat Choppers.
Enterprise Mfg. Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N. Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard, P. E., Scranton, Pa.
Leonard, P. F., Scranton, Pa.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Thomas, Dago J., 1 Broadway, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co., Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co., 139 Green'ch. N. Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Wash'ton N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y.

Norway Shapes. *Rollers of.*
Naylor & Co., 99, John, N. Y.
Rowland William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester.
Wilson J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn

Oil Stones.
A. F. Pike Mfg. Co., Pike Station, N. H.
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardiner, Mass.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-Spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Fraim, E. T., Lancaster, Pa.

Pails.
Brower, John, New York.

Paint.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Stocking E. B., Washington, D. C.

Perforated Metal.
Throop Perforating Co., Buffalo, N. Y.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Picture Cord.
Gilmore, E. W. & Co., No. Easton, Mass,

Pig Iron.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of.*
Donaldson Iron Co, Emaus, Pa.
Fox John, 160 Broadway, N. Y.
Morris, Tasker & Co., 234 South Third street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co, St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N. Y

Post Hole Diggers.
Lagonda Mfg. Co., Springfield, O.
Motherwell Iron and Steel Co., Logan, O.

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Powder.
King's Great Western Powder Co., Cincinnati, Ohio.

Power Hammers.
Belden R. A. & Co., Danbury, Conn.
Bradley & Co., Syracuse, N. Y.
Dieneit & Eisenhardt, Philadelphia
Duncan, W. P. & Co., Bellafonte, Pa.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown, Conn.

Presses, Power. *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Gould's Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Keystone Engine and Machine Wks., Phila., Pa.
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Easthampton, Mass.

See Alphabetical Index, Page 88.

Pumps, Force.
Myers P. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y.

Pumps. *Makers of.*
Bucket, Pump and Water Purifier.
Columbiana Pump & Machine Co.
Douglas W. & B., Middletown, Conn.
Goulds Mfg. Co., 60 Barclay, N. Y.
Silver & Deming Mfg.Co., Salem, O.
Union Mfg. Co., 103 Chambers, N. Y.

Punches.
Fulton Iron & Eng. Wks. Detroit, Mich.

Punching and Shearing Presses.
Long & Allstatter Co., Hamilton, O.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown, Pa.
Joliet Steel Co., 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y.
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Cowles Mfg. Co. Bridgeport, Ct.

Razors.
Dame, Stoddard & Kendall, Boston, Mass.
J. R. Torrey Razor Co., Worcester Mass.

Razor Strops.
Tower & Lamont, Rochester, N. Y.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia.

Refrigerator Trimmings.
Brainard & Co., 97 Chambers St., N. Y.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Dimosway & Henderson, 105 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rock Drills.
Clayton Air Compressor Works, Brooklyn, N. Y., and Dey, N. Y.

Rolling Mill Machinery.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co., Pittsburgh, Pa.
Seaman, Sleeth & Black, Pittsburgh.

Roofing.
Garry Iron Roofing Co., Cleveland, O.

Rules, *Manufacturers of.*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Balances.
Caldwell, W. H., Rochester, N. Y

Sash Cords and Chains.
Morton Thos., 65 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Whitney, D. J., 47 Warren, N. Y.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Claflin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers St., New York.
Ives H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Cohoes, N. Y.
Palmer Hardware Mfg. Co, Troy, N. Y.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Truax, Chauncey S., 64 College Place N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons, Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Riehlé Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Kilrich Hdw. Mfg. Co., Plantsville, Conn.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S., 205 Quarry, Philadelphia
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls N. Y

Scythe Stones and Whetstones
A. F. Pike Mfg. Co., Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 27 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Schollhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.
Rowlands Sons, T., Philadelphia, Pa.
Sanford Fork and Tool Co., Terre Haute, Ind.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown, Conn.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen, 105 Walker, N. Y.
Wollensak, J. F., Chicago, Ill.

Sporting Goods.
Field, J. B. & Co., Detroit, Mich.
Shields, Jno. & Co., Brookline, Mass.

Spelter.
Manning & Squier, 111 Liberty, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.

Spring Hinges.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Strops.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon Richard, 24 Columbia, N. Y.
Duncan W. P. & Co., Bellefonte Pa.
Long & Allstatter Co., Hamilton, O.

Steam Heating.
Broomell & Sanas, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
McGowan John H. & Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk.

Steam Traps.
Aller Amos, 109 Liberty, N. Y.

Steel Figures and Alphabets.
Stutsman J. M., 181 William, N. Y.

Steel Importers.
Abbott Jere & Co., N.Y. & Boston.
Hobson Francis & Son, 97 John, N. Y.
Jessop Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West, N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Musket's Special).
Jones S. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N.Y.
Frankford Steel Co., Philadelphia
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John, N. Y.
Jones, S. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller, Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss F. W., 83 John, N. Y.
Naylor & Co., 99 John, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N.Y.
Wardlow S. & C., Sheffield, Eng.
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beavor-Webb, J., 145 Broadway.
Hicks & Dickey, Philadelphia, Pa.

Steel Nails
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs. *Manufacturers.*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N. Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng. 91 John, N. Y.
Leng John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops
J. R. Torrey & Co. Worcester, Mass.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Dimosway & Henderson, 105 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Truant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W., Springfield, Mass.
Ellrich Hdw. Mf. Co., Plantsville, Ct.
Fulton Iron and Engine Works, Detroit, Mich.
Hoague, J. B. & Co., Chicopee, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Transom Lifters.
Reiher F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks. *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Riehle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co., 19 Murray, N. Y.

Tubes, Steel.
Long John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Type Writers.
Hammond Type Writer Co., 75-77 Nassau, N. Y.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
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Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 23 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers
Lanman, E. B., Columbus, O.
Mason Iron Co., Philadelphia, Pa.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.

Wheels.
I. A. Weston & Co., Syracuse, N. Y.

Wheelbarrows.
Bryan Mfg. Co., Bryan, Ohio.

Window Cleaners.
Bosley, D. W. & Co., Chicago.

Window Screens.
Darby, Edw. & Sons, Philada., Pa.
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. H. & Bro., 21 Warren St., N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd, Pittsburgh, Pa
Howard & Morse, 45 Fulton, N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co., Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass.
Darby Edward & Sons, Philadelphia.
Estey W. S., 71 Fulton, N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse, 45 Fulton, N. Y.

Wire Goods, *Manufacturers of*
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Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville
Howard & Morse, 45 Fulton, N. Y.
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E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
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Birmingham Wire Nail Co., Birmingham, Ct.
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Trufant W. E., Whitman, Mass.
Whitney A. R. & Co., New York City.

Wire Rods. Steel.
Whitney A. R. & Co., N. Y.

Wire Rope. Iron and Steel. *Makers.*
Broderick & Bascom, St. Louis, Mo.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St Louis, Mo.
Upson, Walton & Co., Cleveland, O.
Washburn & Moen Mfg. Co., Worcester, Mass.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Fall N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co Springfield, Mass.
Billings, Spencer & Co., Hartford Conn.
Coes Wrench Co, Worcester, Mass.
Tower & Lyon, 95 Chambers, N. Y.
Utility Wrench Co, N. Y.
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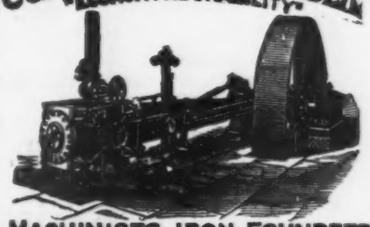

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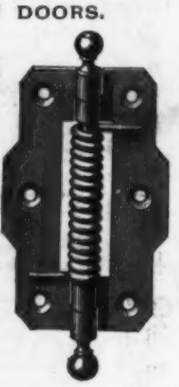

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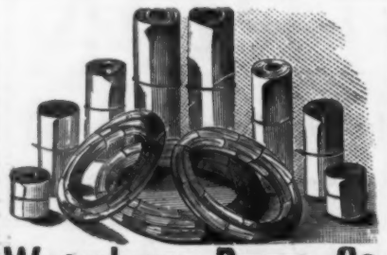

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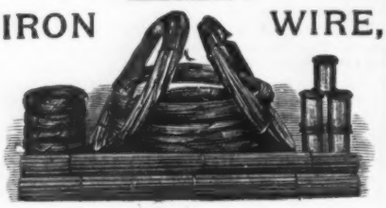

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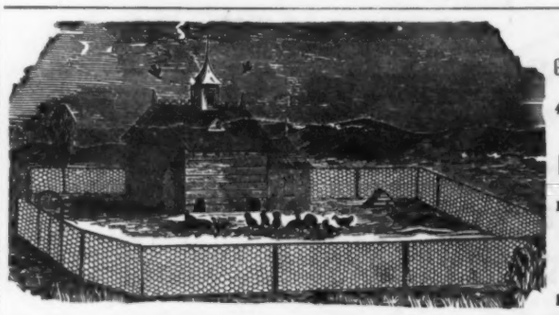

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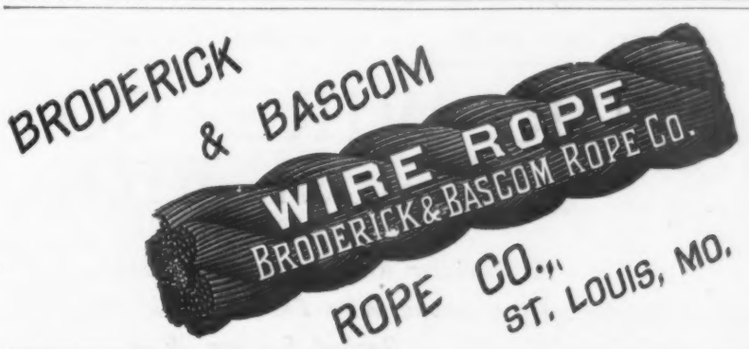

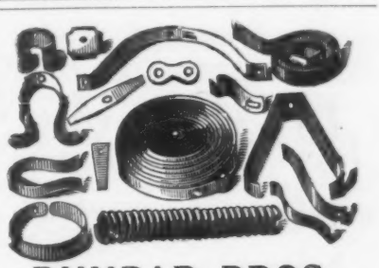

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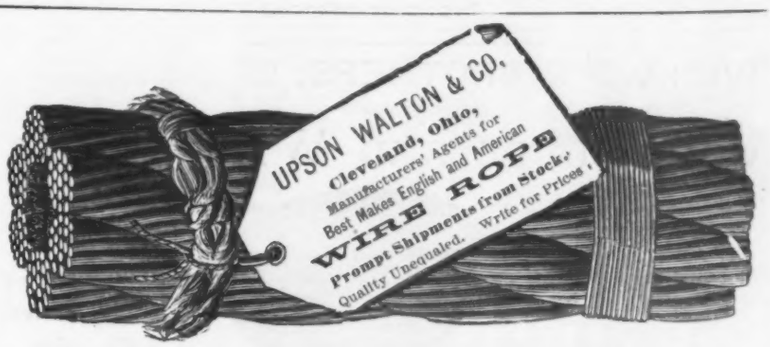

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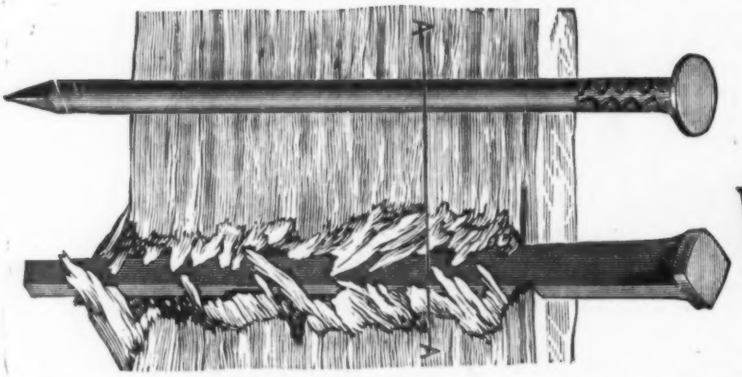

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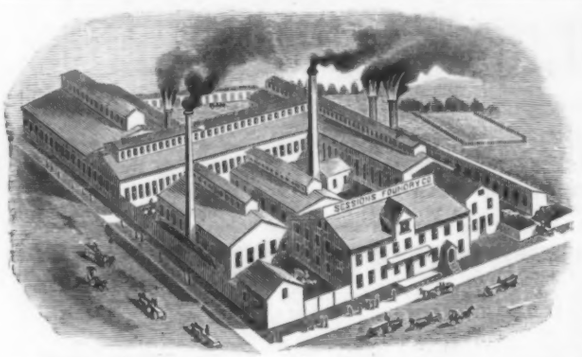

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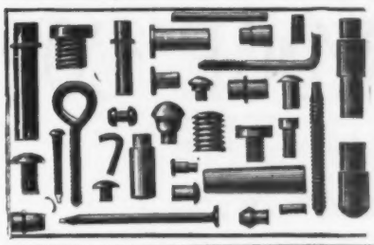

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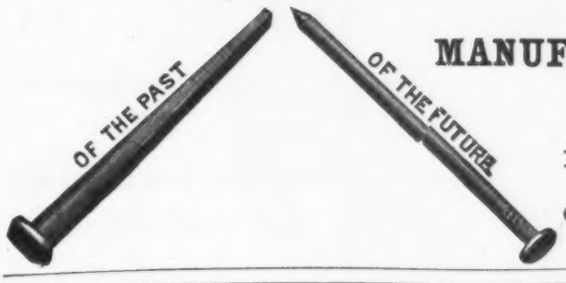

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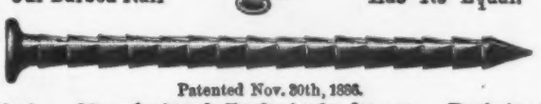

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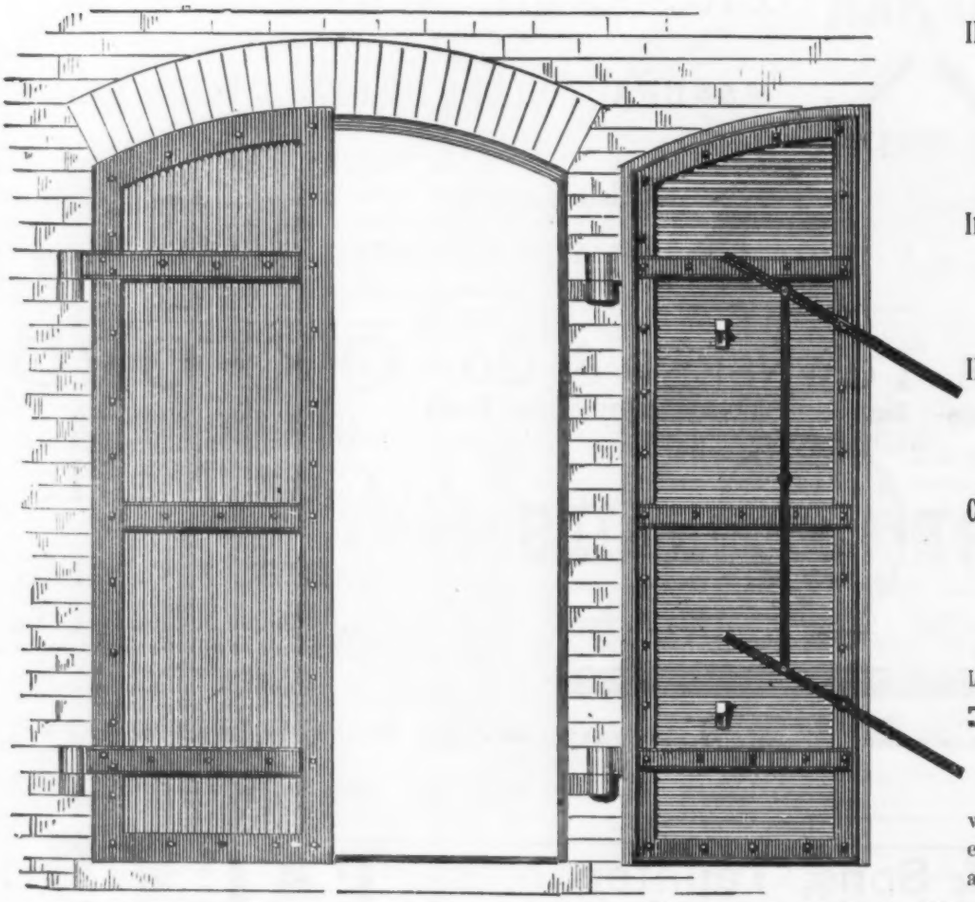

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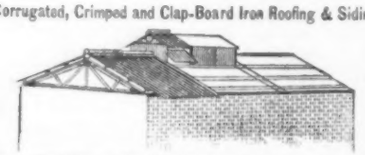

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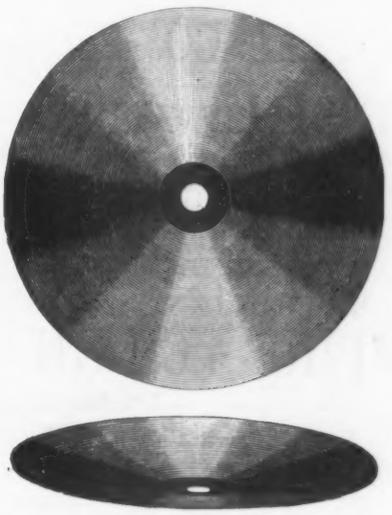

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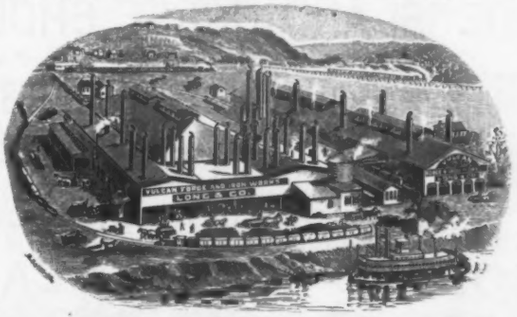

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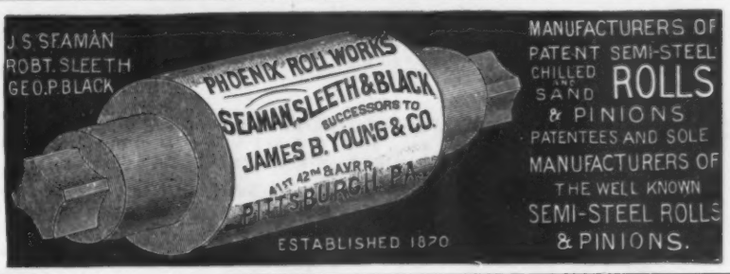

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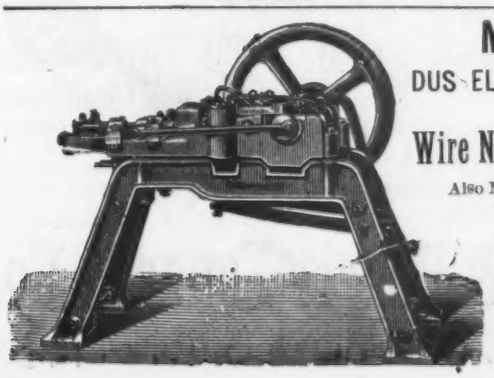

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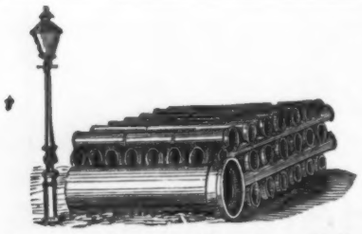

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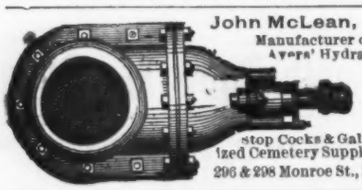

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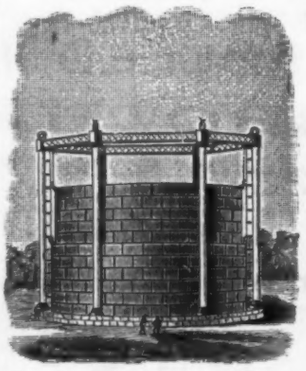

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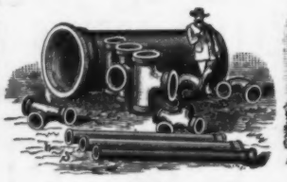

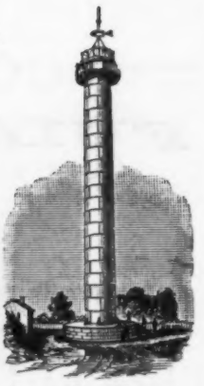

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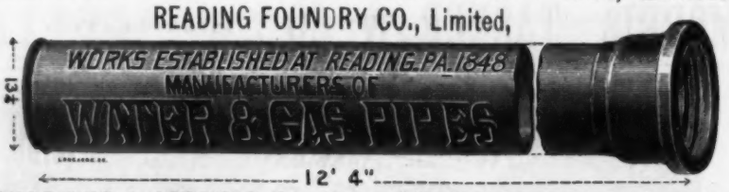

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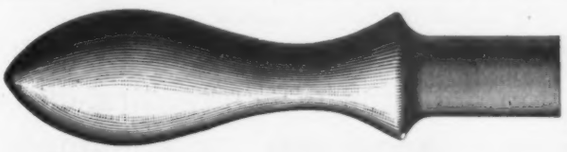

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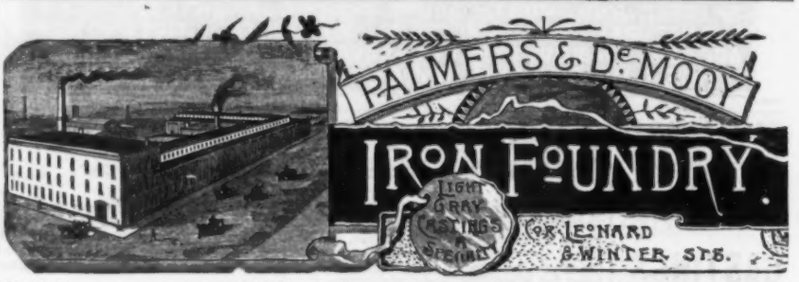

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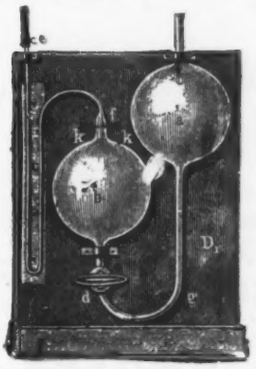

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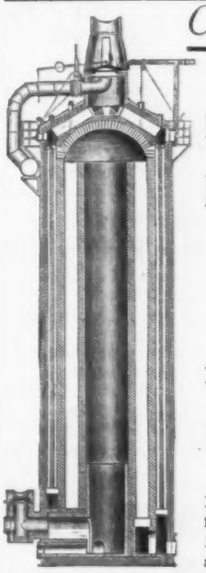

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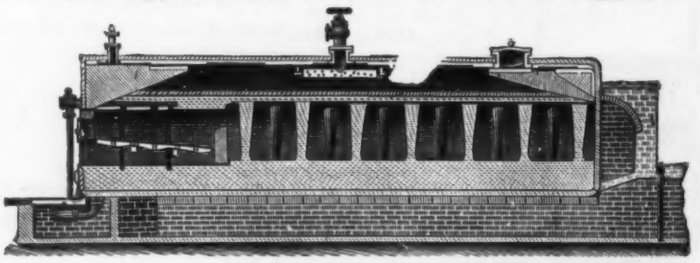

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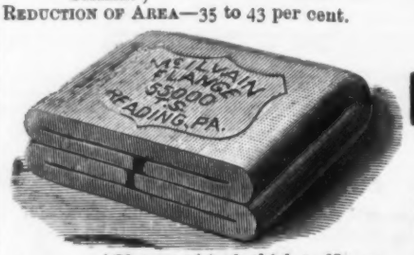

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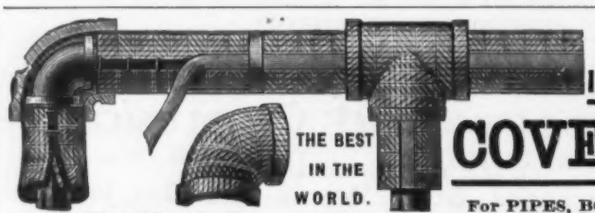

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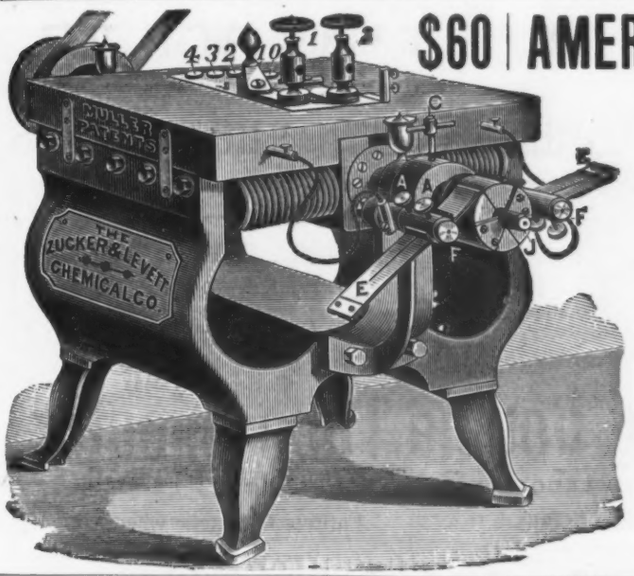

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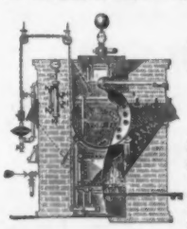

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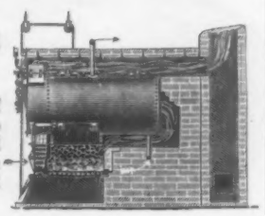

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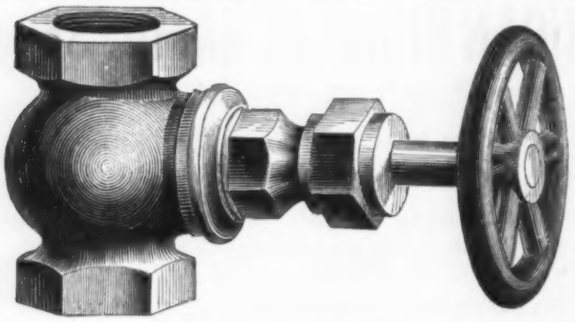

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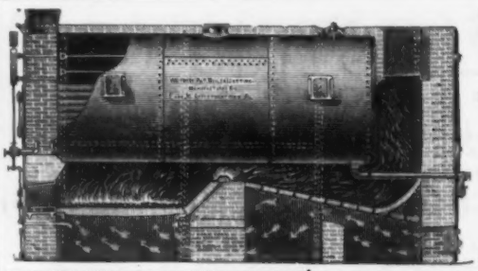

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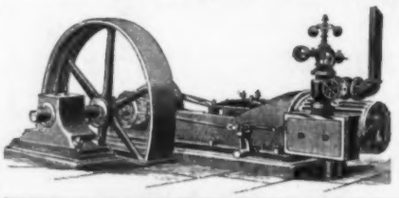

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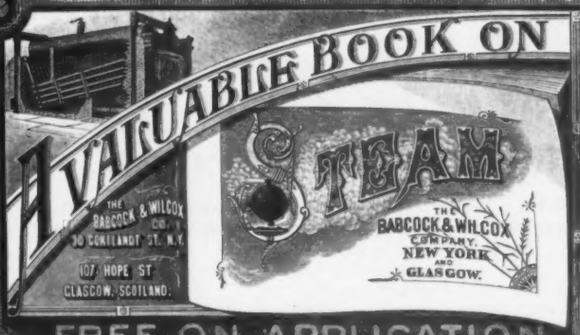

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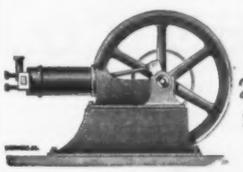

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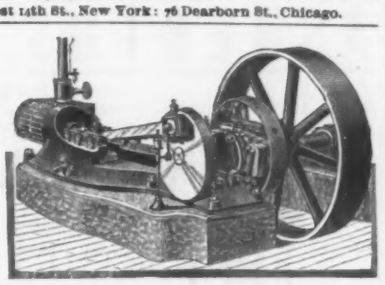

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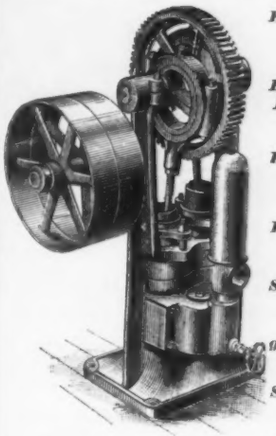

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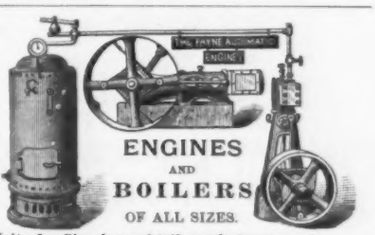

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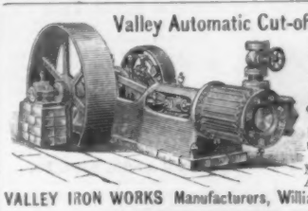

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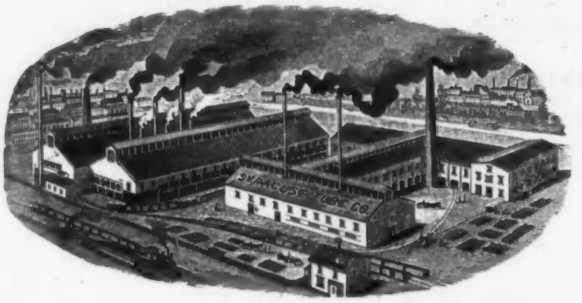

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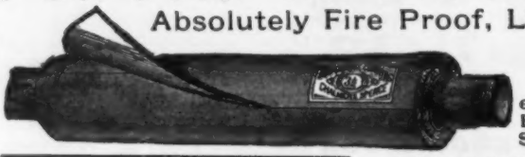

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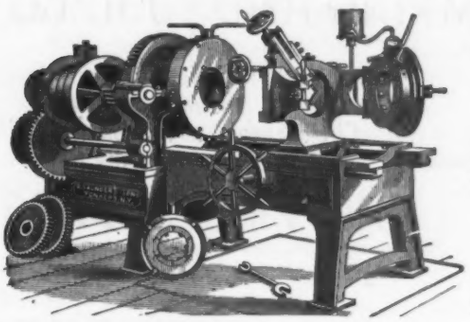

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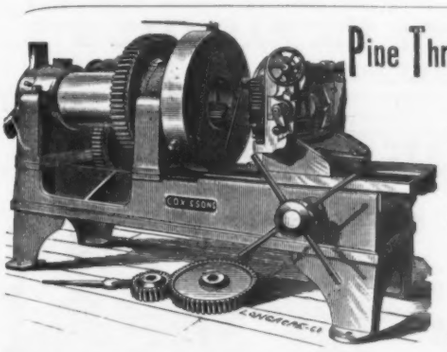

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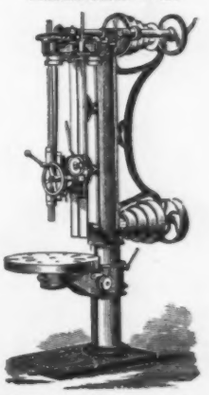

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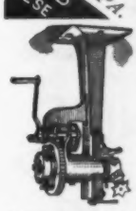

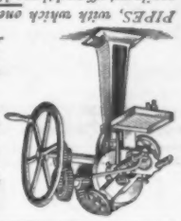

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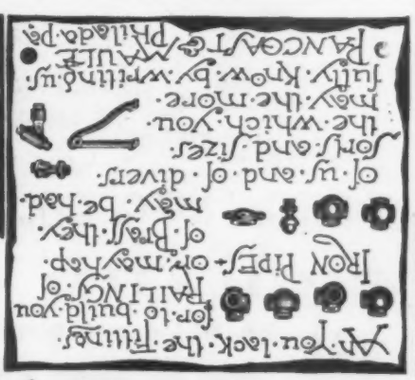

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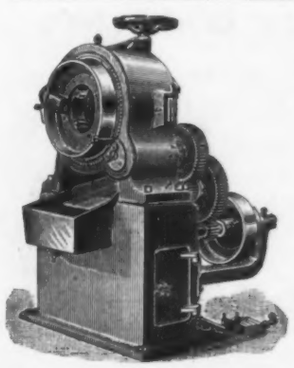

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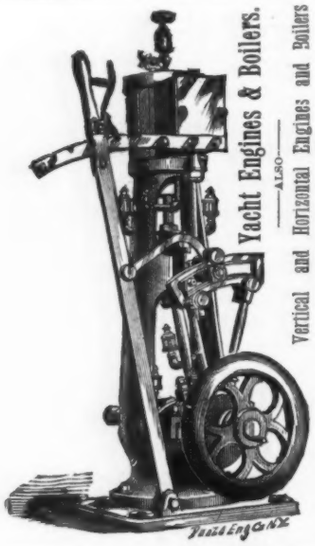

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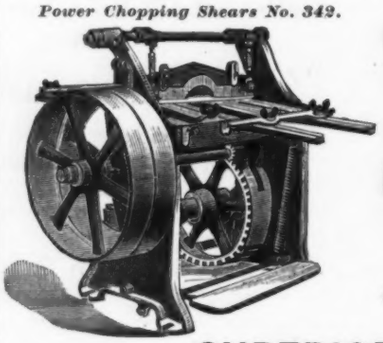

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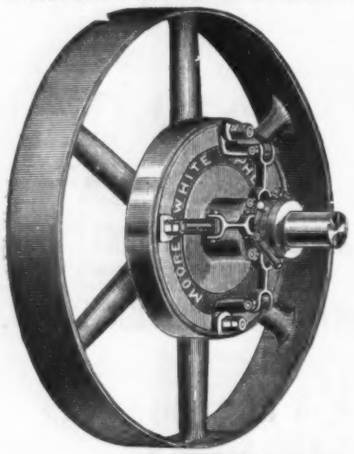

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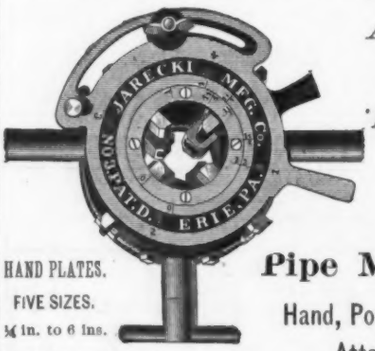

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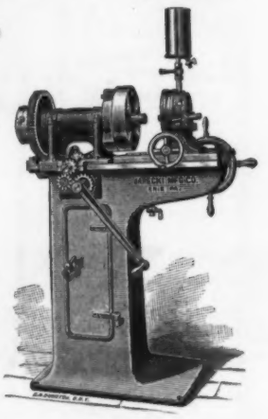

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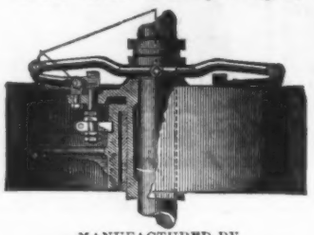

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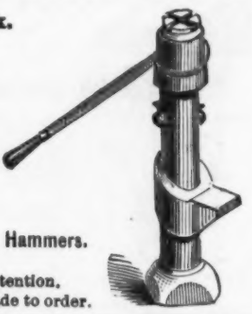

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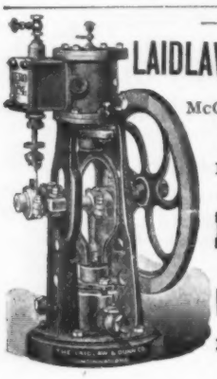

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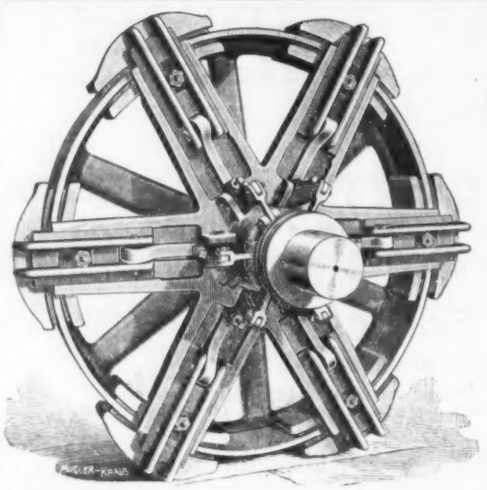

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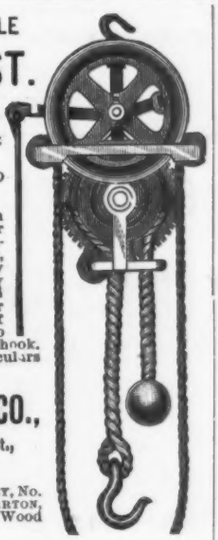

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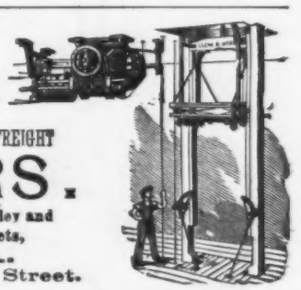

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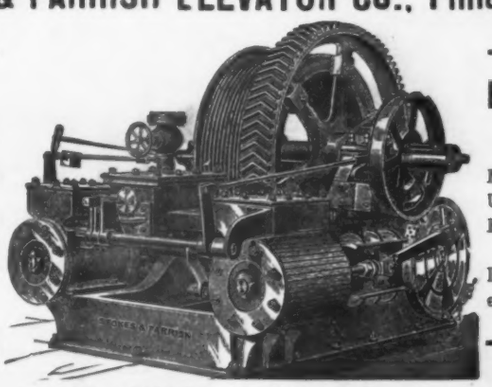

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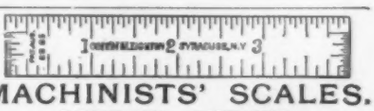

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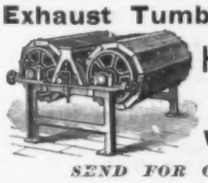

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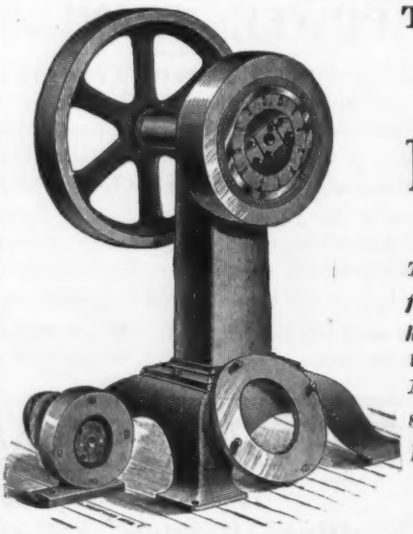
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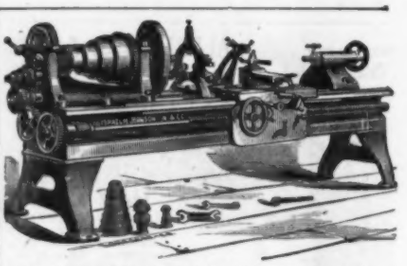
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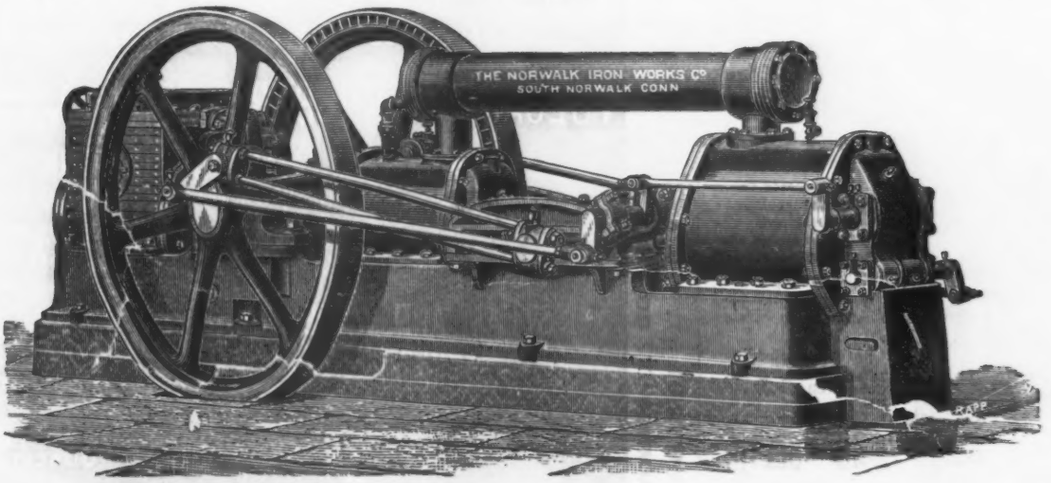

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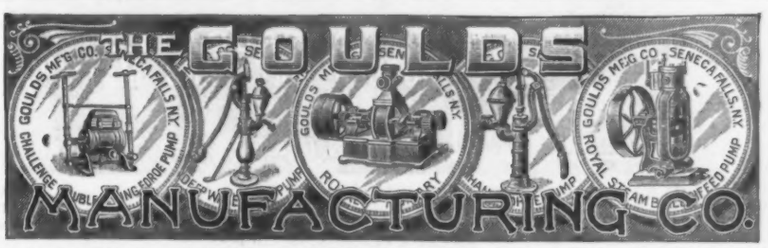

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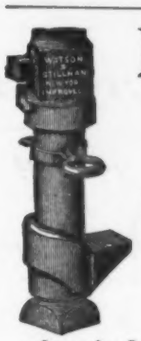

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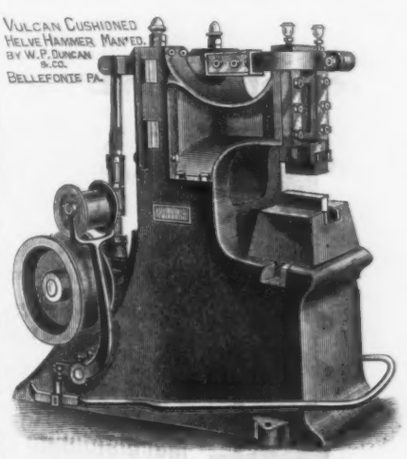

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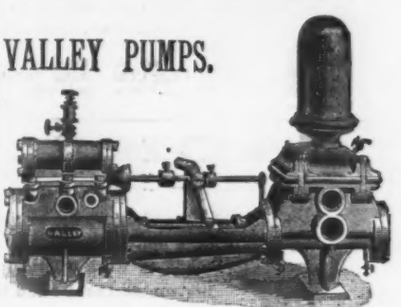

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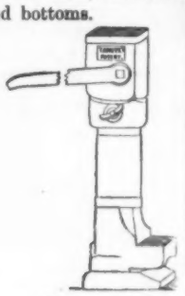

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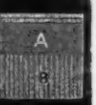

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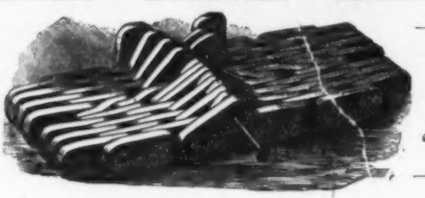

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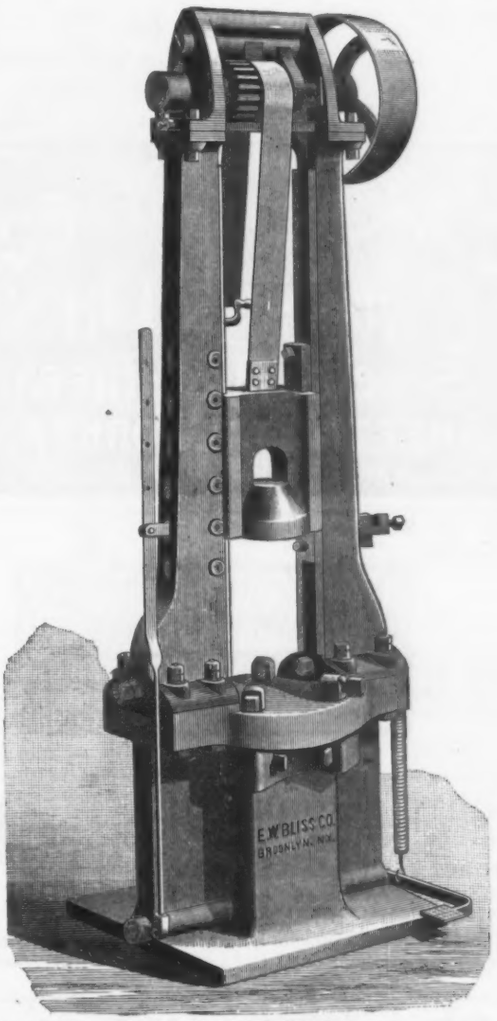

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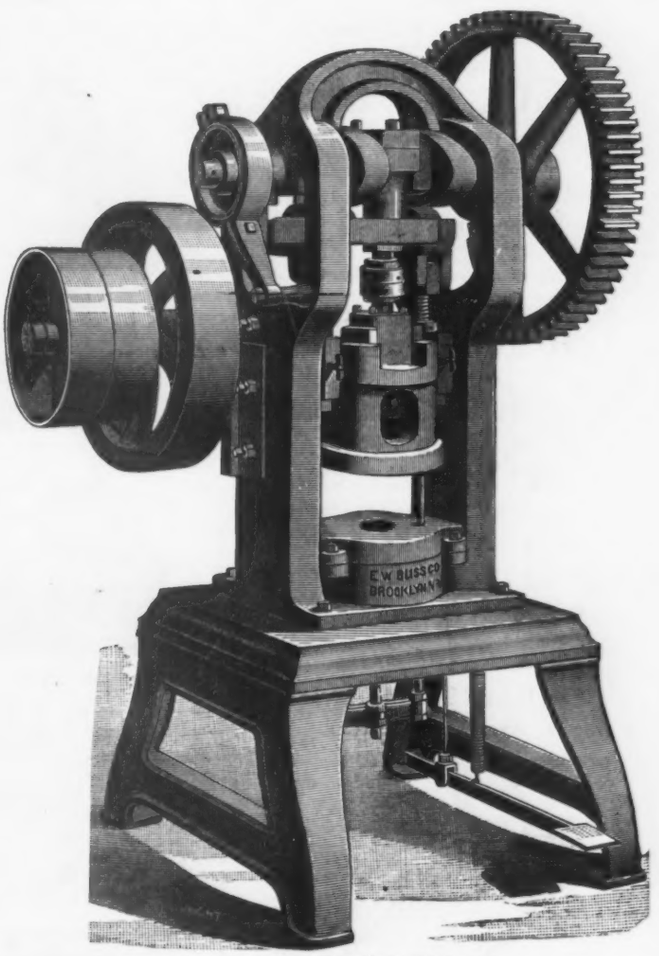

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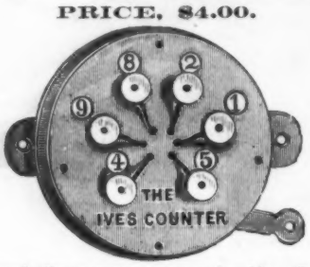

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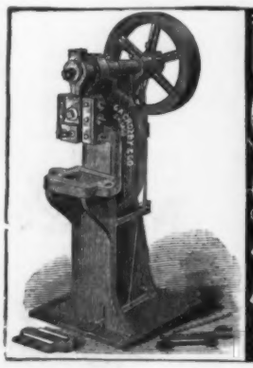

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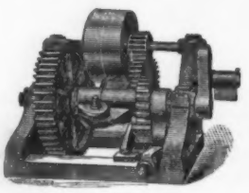

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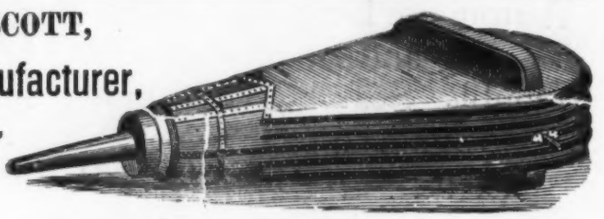

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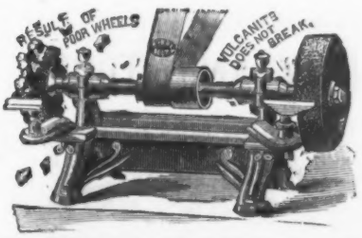

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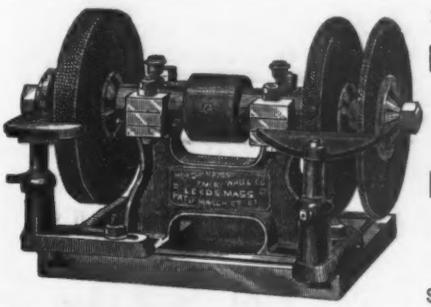

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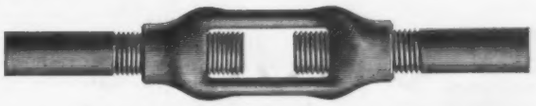
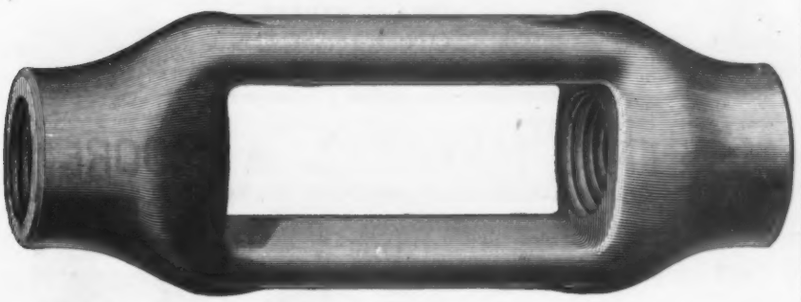
BEST.  CHEAPEST.



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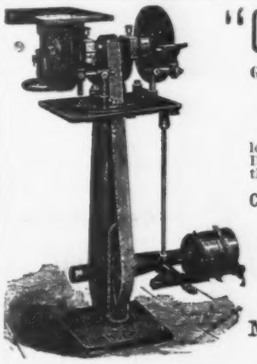

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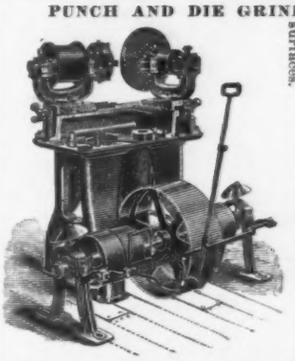

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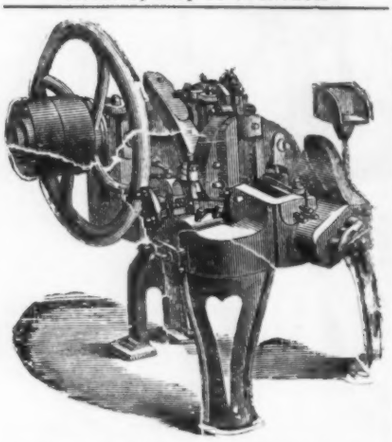

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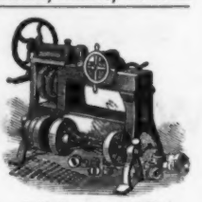

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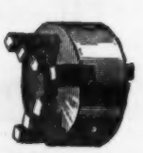

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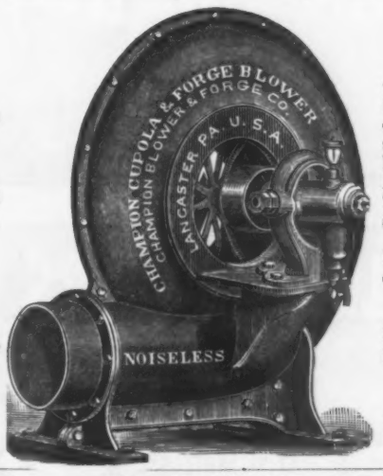

CAUTION.

We desire to call your attention to the fact that the great reputation and popularity of our Machines have induced a concern to attempt an exact imitation thereof; also, issuing a facsimile copy of our late catalogue. We find they have bought a full line of our Champion Lever Blowers, Champion Lever Forges and Eureka Tire Benders, taken them apart, and used them as patterns, regardless of our "Patents."

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NOTICE.—The valuable feature of our Power Fan Blowers and Steel Pressure Blowers is our Champion Journal Box. It has a universal adjustment whereby it comes readily into perfect line with the shaft.

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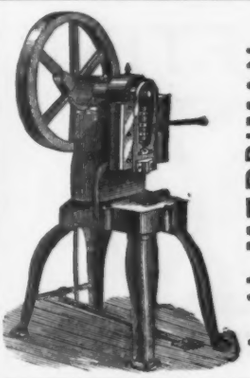

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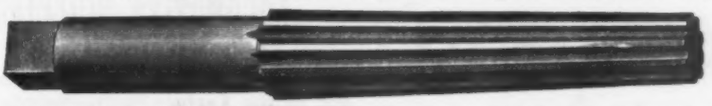

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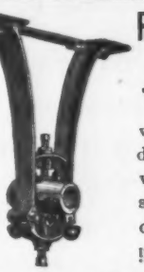

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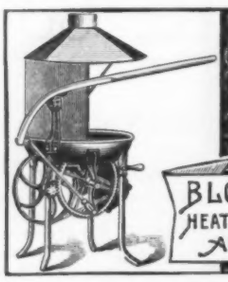

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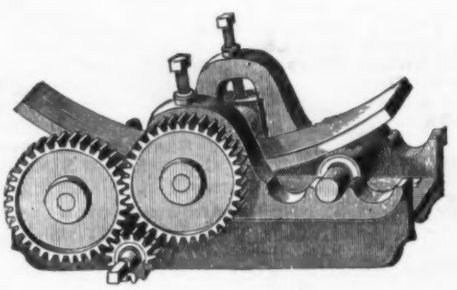

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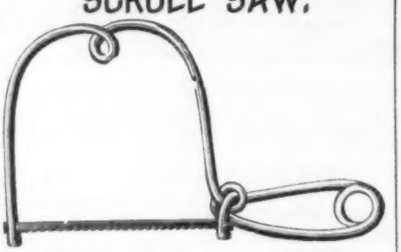

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1 28 x 12 Fay & Scott Engine Lathe.
1 30 x 14 Fifield Engine Lathe.
1 17 x 8 Lodge, Davis & Co. Engine Lathe.
1 19 x 9 Lodge, Davis & Co., Engine Lathe.
1 21 x 11 Lodge, Davis & Co., Engine Lathe.
1 24 x 10 Lodge, Davis & Co., Engine Lathe.
1 each No. 1 and No. 2 Hand Lathes. Lodge, Davis & Co.
1 10-inch Hand Lathe.
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1 25 x 13 Phoenix Lathe. Good order.
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1 25 x 16 New Haven Lathe. Good order.
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1 20 x 20 x 4 Williams Planer.
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1 20-inch Lodge, Davis & Co. Lever Drill. New.
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1 20 " Horizontal Engine; and 30-Horse Return Tubular Boiler; first-class order; complete; all castings, fittings and stock.

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1 each " 18 in. x 8 and 10 ft.
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1 " " 16 in. x 6, 8 and 10 ft.
1 " " 14 in. x 6 and 8 ft.
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3 " " 11 in. x 4 ft. and 5 ft.
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1 " 26 in. x 26 in. x 8 ft.
1 " 30 in. x 30 in. x 8 ft.
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Six 50 " Hor. Tubular Boilers Good order.
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One 25 " Babcox & Wilcox Water Tube Boiler.
One 50-in. Boring and Turning Mill.
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One 3 Spindle Drill.
One 36-in. Swing by 16-ft. bed Engine Lathe.
One 24 x 16-ft. Engine Lathe.
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One 14 x 10 x 10 Worthington Duplex Pump.
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Four Sturtevant Blowers. Second-Hand.

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These Planers are held at very low prices.
1 72 in. Pulley **TURNING MACHINE.**
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15 in. Pillar Shaper, with			Common Vise	$275
15 in.	"	"	Improved "	300
24 in.	"	"	Common "	450
24 in.	"	"	Improved "	500
25 in.	"	"	" "	650
15 in. Traverse Head Shaper, with Improved Vise				550
10 in. x 10 in. x 2 ft.			Planer	180
16 in. x 16 in. x 4 ft.			"	360
22 in. x 22 in. x 5 ft.			"	450
24 in. x 24 in. x 6 ft.			"	600
26 in. x 26 in. x 8 ft.			"	700
80 in. x 30 in. x 8 ft.			"	1000
30 in. x 30 in. x 10 ft.			"	1075
30 in. x 30 in. x 12 ft.			"	1150
10 in. x 4 ft. Hand Lathe				60
12 in. x 4 ft.	"	"		72
12 in. x 5 ft.	"	"		75
12 in. x 6 ft.	"	"		78
15 in. x 6 ft.	"	"		100
15 in. x 8 ft.	"	"		107

12 in., 15 in. and 18 in. slide Rests, $30, $40 and $50.

1, 2, 3 and 4 Spindle Gang Drills, $120 $135, $150, $165.

14 in x 6 ft. $225

18 in. x 6½ ft. Extra Heavy Engine Lathe				$325
18 in. x 8½ ft.	"	"	" "	350
18 in. x 10 ft.	"	"	" "	375
18 in. x 12 ft.	"	"	" "	400
Brass Turning Lathe, with Turret				500
" " "			without "	400

Also a few good second-hand Lathes, Planers, &c.
Please mention this paper when sending for Catalogue.

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One 32 in. by 32 in.
One 15 in. by 11½ in.
Cylinder Boilers
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1 7-ft. 28 x 28 Planer.
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2 8-ft. 18 in., Engine Lathe.
2 Monitor Head Lathes.
1 9-ft. bed, 16 in., Engine Lathe.
1 6-in. Horizontal Boring Mill, 48 in. swing.
1 Crank Shaper.
1 No 1 Pratt & W. Screw Machine, Wire Feed.
1 2-spindle Pratt & Whitney Drill.
1 6-spindle Pratt & Whitney Drill.
1 2-spindle Edging Machine.
1 10-in Stroke Slotting Machine.
Send for List of Second-hand Tools.

New York Machinery Depot,

Bridge Store No. 16, on Frankfort st., New York.

FOR SALE AT LOW PRICES.—1 each, 12 and 16-in. Turret Lathe, Warner & Swasey, good order. 1 12-inch Automatic Turret Lathe, Freck new, $150. 1 2-Spindle Drill Press with Adjustable Spindles, $50. 1 No. 2 Garran Hand Feed Miller, good order, $75. 1 Power Punch, punches ⅝ x ⅝ new, $1 5. 2 Large Screw Punches, good order and cheap. 1 3-Spindle Horizontal Nut Tapper, good order, $75. 1 36-inch Car Wheel Borer, good order, $250 1 36-inch Pulley Turning Lathe. 1 Seymour Pulley Balancing Machine. A large assortment of Lathes, Planers, Shapers, etc. New and second hand. Send for catalogue.
W. H. ROBERTSON, 51 So. Canal St., Chicago, Ill.

FOR SALE.

Blowing Engine, new and first-class; Steam Cylinder 36 in. diam.; Blowing Cylinder 84 in. diam.; Stroke 48 in.; Weight 71 tons. Can ship in ten days' notice.

CLEVELAND SHIP BUILDING CO.,
Successors to Cuyahoga Steam Furnace Co.,
Cleveland, Ohio

GOOD SECOND HAND TOOLS.

I want to buy for cash good second-hand

LATHES,
PLANERS
AND DRILLS.

Address "A. B. S.,"
Office of *The Iron Age*, 66-68 Duane Street, N. Y.

DIXON'S—Smooth and Perfect Castings

can be cheaply made by the use of DIXON'S PLUMBAGO FACINGS. Send for circular.

JOS. DIXON CRUCIBLE CO.,
JERSEY CITY, N. J.

MEMORANDUM

FROM

HENRY I. SNELL,

135 North Third St.,

PHILADELPHIA.

I have for sale cheap a new **New York Safety Steam Power Company's Steam Yacht Engine and Boiler,** with Pumps, Condenser and all attachments for the complete equipment for a boat 65 to 70 feet long, and capable of driving the same about 12 miles per hour.

FOR SALE.

ONE OF GEORGE H. CORLISS'S UPRIGHT ROLLING MILL ENGINES:

Cylinder, 32 in. x 60 in.; Shaft, 17 in. Diameter, with fly wheel of 25 tons weight and 20-foot diameter fitted to the shaft; *also* 1 Berriman Heater, 4 feet diameter, 12 feet high, with steam and exhaust pipe and fittings for same; *also* 2 Sturtevant Steel Pressure Blowers, 6 ft. diameter; Outlet, 20 x 24, with 14 in. pulley on each side for 12-in. belt. Address

NATHAN SENHAM, Hartford, Conn.

FOR SALE.

ONE SCREW PLANER.—14-foot Bed; will take in 4 feet between uprights.

Address

SHICKLE, HARRISON & HOWARD IRON CO.
St. Louis, Mo.

SPECIAL BARGAINS.

One 18 x 48 Horizontal Corliss Engine.
" 16 x 32 " Wright "
" 14 x 42 " Wheelock Engine.
" Copeland & Bacon Double-Hoisting Engine, 9 x 10.
" Worthington Duplex Pump 7½ x 4½ x 10.
Will be sold low to close.

D. B. CRUICKSHANK,
243 Dyer St., Providence, R. I.

MACHINERY SALE.

38 in. x 36 in. x 12 ft. Fond Planer in good order	$890
30 in. x 24 in. x 6 ft Planer, with new gears and screws	250
26 in. x 24 in. x 5½ ft. New Haven Planer, in fine order	400
18 in. x 10 ft. Engine Lathe, with 9 in. chuck	185
14 in. x 6 ft. Engine Lathe, newly repaired	150
26 in New Haven B G Drill, good order	160
4 x 6 Horizontal Engine, nearly new	125
8 x 12 Horizontal Engine, good order	150
10 x 15 Horizontal Engine, good order	175

Large stock of new Tools, Engine Boiler, &c Send for stock list. S. M. YORK, Cleveland, Ohio.

ENGINES, &c., FOR SALE.

One pair of 30-inch by 72-inch Horizontal Engines, connected to one main shaft, built by the Corliss Steam Engine Co. Cut Gear Wheel, 24 ft. 9-in. diam., 180 teeth. Jack Gear, 9 ft. 7½-in diam., 70 teeth, with its shaft 12 ft 7 in. long, and two bearings. Valve Gear of the crab-claw pattern. Condensing Apparatus connected to each cylinder, of the Corliss Upright Pump type. The gears and all parts of the Engine are in good condition and are now in operation. These Engines are exceptionally heavy and well adapted for Rolling Mill work, or could be connected to blowing cylinders, air compressors, &c., very readily. Delivery, July 1st, 1888. Also, for sale, about 65 ft. of 7-in. Hammered Iron Shafting with couplings, bearings, &c. Also 4 14 ft. Pulleys, 31-in. face fitted to above shaft. Apply to

JOHN WATERMAN, Treas.,
WARREN MFG. CO., Warren, R. I.
Or to REMINGTON & HENTHORN,
MECHANICAL ENGINEERS, Providence, R. I.

Providence, R. I., May 16, 1888.

ENGINES.

14 in. x 48 in. Corliss Beam.
26 in. x 6 ft. " "
18 in x 48 in. Greene Horizontal.
One pair Corliss Horizontal, 30 in. x 6 ft., first-class, now running.
New Engines, from 2 H.-P., Vertical or Horizontal.

A. B. PITKIN,
Providence, R. I.

FOR SALE.

At less than half first cost, a Delamater Duplex 16 in. x 36 in. Compressor, in thoroughly good working order. Address

L. C BIERWIRTH, Sec'y, Dover, New Jersey.

Rolling Mill Machinery
For Sale.

SHEARS, ENGINES, BOILERS, FLOOR PLATES, &c.

One Heavy Plate Shear, 48-inch throat.
" Large Lever Shear. Cutting old rails.
" Small " " " scrap iron.
" Rotary " " " strips 5-16 in.
" Large Upright " " tops and bot'ms 1 in
" Small " " " ¾ in
" Upright High-Pressure Engine, 16 x 18 in.
Two Winslow Squeezers. One new.
One Dudgeon Steam Hammer, 18 in. diam., 40 in. stroke.
Upright Tubular Boilers, 15 ft. long 60 in. diam.
Cylinder Boilers, 20-24 ft. long, 30 in. diam.
Stacks, 30 to 50 ft. long, 30 in. diam.
One Crane (Iron) about 5 tons.
Two Cranes about 5 tons capacity.
Cast Iron Floor Plates, 2 x 4 ft.
Boshes, Puddle Furnace Castings, Steam Piping (cast and wrought iron).
Blast Pipe, Cinder Buggies, Tanks, Rolls and Housings, &c.
Beam Engine, 14 x 30 in.
" " 30 x 60 in.
The above are in good order, and for sale in lots to suit for immediate delivery.

THOMPSON C. GILL & CO.,
210 S. Third St., Philadelphia, Pa.

SECOND-HAND

DROPS AND LIFTERS

bought, sold, or taken in exchange for new.

BEECHER & PECK,
New Haven, Conn.

ROLL TURNING LATHES, BLOWER AND ENGINE.

One Single " " " 18 in. "
" Upright Engine, 6½ in. x 17 in.
" Root Blower No. 7.
All in good order,

THOMPSON C. GILL & CO.,
210 So. 3d St., Philadelphia, Pa.

FOR SALE.

One 15-Light Dynamo complete, with 15 Arc Lights. New.

DANIEL KELLY,
51 North 7th St.,
Philadelphia.

FOR SALE.

75 Tons Stove Plate.
100 Tons Machinery Iron.
Also Old Iron and Metals of all kinds.

PETTIS & HIGGINS,
301 Fountain St., Providence, R. I.

FOR SALE.—18 x 42 CORLISS ENGINE, built very heavy for the Brush Electric Light Co.; other styles of Automatic and Plain Slide Valve Engines, Boilers and Pumps.

FRANK McSWEGAN,
Dover St. and Franklin Sq.

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

FOSDICK & PLUCKER,
SIXTH and CULVERT STS., CINCINNATI, OHIO.

WANTED.—To buy a Good Second-hand or New 60 in. x 60 in. PLANER, to plane from 15 to 30 feet. If Second-hand, must be of modern design and in first-class order.

FOSDICK & PLUCKER,
Sixth & Culvert,
Cincinnati, Ohio

FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock, Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85 two stories Warehouse, 22 x 30, two stories in rear. Does a large and paying business, which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade. Address

W. L. HAY & SON,
Iowa Falls, Iowa

REMOVAL.

All my stock must be sold. No reasonable offer refused.

1 20 x 48 Corliss Automatic Engine.
1 12 x 42 Green Automatic Engine.
1 12 x 24 in. Horizontal Engine.
1 8 in. x 15 in. " " New.
8 8 in. x 12 in. Ames Engine. Nearly new.
1 5 in. x 10 in. Horizontal Engine.
1 10 H.-P. Horizontal Engine.
1 15 H.-P. High Speed N. Y. Safety Engine.
1 6 H.-P. Baxter Engine and Boiler.
1 4 H.-P. Portable Engine and Boiler.
1 6 Horse-Power Upright Engine.
1 10 Horse Upright Engine
1 5 x 12 Double-Drum Hoisting Engine and Boiler.
2 5 ft. x 16 ft. Horizontal Tubular Boiler.
1 4 ft. x 14 ft. Horizontal Tubular Boiler.
1 40 H.-P. Locomotive Boiler.
1 36 in. x 11 ft. New Locomotive Boiler.
1 12 H.-P. Upright Boiler.
3 15 H.-P. New Upright Steel Boilers.
2 New Steel Yacht Boilers.
4 16 in. x 6 ft. Engine Lathe.
1 14-in Stroke, Hewes and Phillips Shaper.
1 36 in. Back-Geared Drill. Self-Feed.
1 Ames 4-Spindle Drills.
1 Pratt & Whitney 4-Spindle Drill.
1 Double-Spindle Milling Machine.
1 12 in. Heavy Slotting Machine.
1 4 in. Morris & Tasker Pipe Threading Machine.
1 set Rubber Grinding Rolls.
9 Tanks, 8 ft. x 5 ft. x 5 ft. 3 in.
1 Tank, 8 ft. diam. x 8 ft. high.
Nos. 3, 4, 5 and 6 Woodward Steam Pumps.
1 Set Power Shears, cut any width.
4 4 ft. Burr Mills, Complete.
12 Contractors' Side-Dumping Cars.
3 Ingersoll Rock Drills
2 Guild & Garrison Air Pumps.
1 6 ft. Vacuum Pan.

ROBT. J. GRAY,
131st St. and Fourth Ave., New York.

ATTENTION,

Capitalist - and - Foundryman.

An Incorporated Company offers for sale State Rights to manufacture and sell a valuable Patent Boiler (for house-heating). Hundreds in successful operation, which can be referred to for full particulars.

Address Box 663,

WORCESTER, MASS.

New England States reserved

FOR RENT.

VALLEY FORGE MILL AND WATER-POWER

(Belonging to Estate of Charles H. Rogers, dec'd.), Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.

For particulars, address

J. B. CARTER, Hardware Manfg. Agent,
504 Commerce St. Philadelphia.

FOR SALE.—The Northwestern Foundry. Largest and best in Minneapolis. Located on half of block 106 (330 x 165 ft.) and part of block 105, corners Third street, Ninth and Tenth aves., South. Main building (200 x 60 ft.) is brick with slate roof, contains four Cranes, three Cupolas, &c., complete set of Car-wheel and various patterns for Stoves, Machinery, Architectural, Ornamental, Bridge and Railroad Castings. Office also of brick, 40 x 20 feet; fire-proof vault and burglar safe in same. Will sell the entire plant, including the valuable Real Estate, Railroad Tracks, Track and Wagon Scales, &c. All the above in first-class order.

Address

MENZEL & FERGUSON,
Minneapolis, Minn

FOR SALE.

One 6 H.-P. N. Y. Safety Engine.
One Vertical Boiler, 60 H.-P. Second-hand.
One 70 H.-P. Buckeye Automatic Engine. Second-hand.
One 25 H.-P. Engine. New.
Two 600 gallon Compound Pumping Engines, with Fly Wheel. New. Address

KEYSTONE ENGINE & MACHINE WORKS,
W. L. SIMPSON, Proprietor,
5th and Buttonwood Sts., Philadelphia.

WANTED, LOCAL

Agents and Traveling Men to sell the most complete stock of Boilers and Engines, Drive Well Points and Tools and Pumps in America.

H. M. SCIPLE,
Bordentown, N. J.

IRON ORE PROPERTY.

For Sale or Lease, situate within three miles of the C. & O. Ry., at White Sulphur Springs, W. Va., about 3000 Acres, underlaid near surface by a persistent seam of red oxide iron ore from 10 to 60 feet in thickness. Numerous analyses show

61 per cent. Metallic Iron.
.07 per cent. Phos.
.05 per cent. Sulphur.

Six miles of outcrop have been proved by a number of openings. The helderberg limestones, more than 300 feet thick, are exposed at many points, and the hills containing the New River coking coals are within sight. There are good sites for furnace plants in the immediate vicinity, and ample water for all purposes. For further particulars, apply to

GENL. JOSEPH R. ANDERSON,
Pres. Tredegar Co., Richmond, Va.
OR
WM. N. PAGE, C. and M. E.,
Powellton, W. Va.

ENGINE PATTERNS FOR SALE.—A BARGAIN.

Patterns complete, of a celebrated and new Stationary and Yacht Engine; from a 3 up to a 16 inch cylinder. Patterns new, with core boxes; excellent condition. To be sold at a sacrifice on account of owner retiring from business. Can be examined any time by calling or addressing the undersigned.

BORDENTOWN FOUNDRY & MACHINE WORKS,
Lock Box 24, Bordentown, N. J.

FOR SALE IN GUILFORD, CONN.

A Factory consisting of a Two story Brick Building, 30 x 70 feet; a Two-story Brick Addition, 22 x 36 feet; a One-story Brick Addition, 14 x 22; a Frame Coal Shed and Store Room; a 40 Horse-power Engine and 50 Horse-power Boiler; a complete line of Shafting, Belting and Steam Pipes for heating; convenient to railroad and tide water, and nearly new; terms easy and price low. Inquire of CHAS. GRISWOLD,
Guilford, Conn.

FOR SALE

A well-established Hardware and Sporting Goods business, located in Jacksonville, Florida. The stock amounting to from $10,000 to $15,000 will be sold at a sacrifice to close the business; sales last year $60,000. The firm has control of the sporting goods trade in Florida, and lease of the best stand in Jacksonville. Address

C. B. BENEDICT,
Jacksonville, Florida

EXPORT.

The advertisers (English Merchants) having imported American Hickory Woodware for the last 12 years, are anxious to secure the sale of another line of American manufacture. Have a connection with Collieries, Ironmongers, Engineers and Colonial Merchants. American references given. Address "J," Box 44, office of *The Iron Age*, 66 and 68 Duane St., New York.

NEW DRILL GRINDER.

We have for immediate delivery a few more of the Mossberg Drill Grinders. Send for testimonials and description. Simple in construction, quick and easy to operate. Manufactured and sold by

DIAMOND MACHINE CO.,
Providence, R. I.

A GOOD HARDWARE BUSINESS FOR SALE.

Wishing to retire from all active business, the undersigned offer for sale their valuable and thoroughly established business. The stock is clean and well selected. Waverly, New York, is a growing place, with considerable manufacturing, and surrounded by a good farming country; has good water, gas works and sewers, also five railroads radiating from it. The location of the store building is central, with every convenience, including hydraulic elevator, &c. The business has been conducted successfully as wholesale and retail; can be continued as we have conducted it, or else we can soon reduce the stock, and it can be conducted as a retail alone.

In negotiating sale, reference given and required.

MERRIAM BROS., Waverly, N. Y.

FOR SALE.

AN UNUSUAL OFFER.

An old established Hardware Business doing the leading wholesale and retail trade in one of the best towns in Minnesota. This is an opportunity seldom offered. Reason for sale, death of proprietor. Address

H. V. RUTHEFORD,
Attorney-at-Law, St. Paul, Minn.

ASSIGNEE'S SALE.

Smith, Beggs & Ranken Machine Company Property!

Embracing nearly an **Entire Block of City Real Estate** described as follows: The **whole Main Street front of City Block No. 29**, being 240 feet on West side of said street, with a frontage of **160 feet on East side of Second Street; 300 feet on South side of Monroe Street** (entire block front), by **150 feet on North side of Clinton Street**; being Lots Nos. 34, 35, 36, 62 and 63 of said Block; also all the improvements, machinery, fixtures, tools and patterns on the above described premises.

This property (being one of the largest and most complete establishments of the kind in the Western Country) will be sold by the undersigned, by order of Court, at Auction, on the premises, to the highest bidder, for cash, subject to a mortgage of about $60,000, on Tuesday, the 21st day of August, 1888, between the hours of 12 o'clock noon and 2 o'clock p. m. of said day.

WM. H. THOMSON, ASSIGNEE,
at Boatmen's Saving Bank,
St. Louis, Mo., July 9th, 1888.

PROPOSALS FOR STEEL PLATES, &c.—June 30, 1888.—Sealed proposals endorsed "Proposals for Steel Plates, &c.," will be received from manufacturers or regular dealers only, at the Bureau of Provisions and Clothing, Navy Department, Washington, D. C., until 11 o'clock A. M., July 24, 1888, and opened immediately thereafter in the presence of bidders, for the supply, at the Navy Yard, Washington, D. C., of 32 steel plates, 57,680 pounds; 16 angle-bars, 1,840 pounds; and 8 deck-beams, 624 pounds. Physical character of metal to be: Tensile strength, 70 000 pounds; elongation, 20 per cent.; contraction 35 per cent.; length of specimen (working part) equal to four times the diameter. Time of delivery, on or before August 30, 1888. Tie bids decided by lot. The above articles must pass the usual naval inspection, and a reservation of 20 per cent. will be withheld from the amount of each delivery until the completion of the contract. Bidders are referred to the Commandant at the Washington Navy Yard for specifications, forms of offer, and all information relative to the articles required. The proposals must be made in duplicate on the proper blank forms *and filled out as indicated by the blank.* The Department reserves the right to reject any proposal not considered advantageous to the Government.

JAMES FULTON, *Paymaster General, U.S. Navy.*

ROLLING AND NAIL MILL MACHINERY FOR SALE.

Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).

One 16-in. Nail Plate Train of three stands of rolls, with pinions, tools and fixtures complete.
One 18-in Muck or Forge Train, two stands of rolls.
One 500-Horse-Power Corliss Beam Engine, with condenser, pumps and other connections.
70 Nail Machines.
3 Spike "
3 Guillotine or Plate Shears.
15 Grindstones, fixtures and countershafts.
43 Gould's Patent Nail Feeders.
About 600 ft. Shafting with pulleys; also Lathes, Planers, Drills and all necessary tools to do repairs.

All in perfect running order and will be sold cheap, as a whole or in parts. Above now located at Weymouth Iron Works, East Weymouth, Mass.

Enquire of

J. F. ROGERS, 101 Milk St., Boston, Mass.
or J. M. LEONARD, Somerset, Mass.

AGENCY WANTED

OF

WIRE NAIL MILL

For New York, New Jersey and New England States.

Address "D. G.," Box 91,
Office of *The Iron Age*, 66-68 Duane St., N. Y.

TO LET.

Office and Sample Room.
One half of Basement. All of Subcellar.
HUMASON & BECKLEY MFG. CO.,
80 Chambers Street, New York

FOR SALE.

The Trustees of The Abbott Iron Co., Baltimore, Md., offer for sale, the following:
Hot Rail Saw-Rigging, for cutting to 30 ft., with bed-plate, stands, shafting, gearing, &c.
Gifford Injectors, Nos. 8 and 9.
One Testing Machine, made by Riehlé Bros.
One Railroad Scale, " " 32-ft. l'ng
Four Dimpfel Blowers, 24 in. x 60 in.

Apply to

C. H. ASHBURNER,
P. O. Box 65, Baltimore, Md.

WANTED.—A large SHEAR of sufficient strength to cut standard section Iron or Steel Rails, or 5-inch round Iron cold. Address

THE WARREN IRON & STEEL CO.,
Warren, Ohio.

Price List of Iron Working Tools

ON HAND BY

THE HENDEY MACHINE CO., Torrington, Conn.

15 in.	Pillar Shaper, with	Common Vise		$275
15 in.	"	"	Improved "	300
24 in.	"	"	Common "	450
24 in.	"	"	Improved "	500
25 in.	"	"	" "	650

15 in. Traverse Head Shaper, with Improved Vise 550

10 in. x 10 in. x 2 ft.	Planer		180
16 in. x 16 in. x 4 ft.	"		360
22 in. x 22 in. x 5 ft.	"		450
24 in. x 24 in. x 6 ft.	"		600
26 in. x 26 in. x 8 ft.	"		700
30 in. x 30 in. x 8 ft.	"		1000
30 in. x 30 in. x 10 ft.	"		1075
30 in. x 30 in. x 12 ft.	"		1150

10 in. x 4 ft.	Hand Lathe		60
12 in. x 4 ft.	"	"	72
12 in. x 5 ft.	"	"	75
12 in. x 6 ft.	"	"	78
15 in. x 6 ft.	"	"	100
15 in. x 8 ft.	"	"	107

12 in., 15 in. and 18 in. Slide Rests, $30, $40 and $50.

1, 2, 3 and 4 Spindle Gang Drills, $120 $135, $150, $165.

14 in x 6 ft. $225

18 in. x 6½ ft.	Extra Heavy Engine	Lathe		$325
18 in. x 8½ ft.	"	"	"	350
18 in. x 10 ft.	"	"	"	375
18 in. x 12 ft.	"	"	"	400

Brass Turning Lathe,	with Turret	500
" " "	without "	400

Also a few good second-hand Lathes, Planers, &c.

Please mention this paper when sending for Catalogue.

FOR SALE.

VERTICAL ENGINES,

One 32 in. by 32 in.

One 15 in. by 11½ in.

Cylinder Boilers

Steam Pumps.

For further particulars apply to

DAN'L W. RICHARDS & CO.,

88 to 96 Mangin St., New York.

SECOND HAND

MACHINISTS' TOOLS.

1 Planer, planes 22 ft. long, 48 x 38, double heads on cross head
1 Planer, planes 12 ft. 36 in. x 34 in.
1 7-ft. 28 x 28 Planer.
1 Planer, planes 3 ft. long, 19 in. x 16 in.
1 18 ft. bed, 50 in., Engine Lathe.
2 8-ft. 18 in., Engine Lathe.
2 Monitor Head Lathes.
1 9-ft. bed, 16 in., Engine Lathe.
1 6-in. Horizontal Boring Mill, 48 in. swing.
1 Crank Shaper.
1 No 1 Pratt & W. Screw Machine, Wire Feed.
1 2-spindle Pratt & Whitney Drill.
1 6-spindle Pratt & Whitney Drill.
1 2-spindle Edging Machine.
1 10-in Stroke Slotting Machine.

Send for List of Second-hand Tools.

New York Machinery Depot,

Bridge Store No. 16, on Frankfort st., New York.

FOR SALE AT LOW PRICES.—1 each, 12 and 16-in. Turret Lathe, Warner & Swazey, good order. 1 12-inch Automatic Turret Lathe, Freck new, $150. 1 2-Spindle Drill Press with Adjustable Spindles, $50. 1 No. 2 Garran Hand Feed Miller, good order, $75. 1 Power Punch, punches ½ x ½ new, $1 5. 2 Large Screw Punches, good order and cheap. 1 3-Spindle Horizontal Nut Tapper, good order, $75. 1 36-inch Car Wheel Borer, good order, $250 1 36-inch Pulley Turning Lathe. 1 Seymour Pulley Balancing Machine.

A large assortment of Lathes, Planers, Shapers, etc. New and second hand. Send for catalogue.

W. H. ROBERTSON, 51 So. Canal St., Chicago, Ill.

FOR SALE.

Blowing Engine, new and first-class; Steam Cylinder 36 in. diam.; Blowing Cylinder 84 in. diam.; Stroke 48 in.; Weight 71 tons. Can ship in ten days' notice.

CLEVELAND SHIP BUILDING CO.,
Successors to Cuyahoga Steam Furnace Co.,
Cleveland, Ohio

GOOD SECOND HAND TOOLS.

I want to buy for cash good second-hand

LATHES,
PLANERS
AND DRILLS.

Address "A. B. S.,"

Office of *The Iron Age*, 66-68 Duane Street, N. Y.

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can be cheaply made by the use of DIXON'S PLUMBAGO FACINGS. Send for circular.

JOS. DIXON CRUCIBLE CO.,

JERSEY CITY, N. J.

MEMORANDUM

FROM

HENRY I. SNELL,

135 North Third St.,

PHILADELPHIA.

I have for sale cheap a new **New York Safety Steam Power Company's Steam Yacht Engine and Boiler,** with Pumps, Condenser and all attachments for the complete equipment for a boat 65 to 70 feet long, and capable of driving the same about 12 miles per hour.

FOR SALE.

ONE OF GEORGE H. CORLISS'S UPRIGHT ROLLING MILL ENGINES;

Cylinder, 32 in. x 60 in.; Shaft, 17 in. Diameter, with fly wheel of 25 tons weight and 20-foot diameter fitted to the shaft; *also* 1 Berriman Heater, 4 feet diameter, 12 feet high, with steam and exhaust pipe and fittings for same; *also* 2 Sturtevant Steel Pressure Blowers, 6 ft. diameter; Outlet, 20 x 24, with 14 in. pulley on each side for 12-in. belt. Address

NATHAN BENHAM, Hartford, Conn.

FOR SALE.

ONE SCREW PLANER.—14-foot Bed; will take in 4 feet between uprights.

Address

SHICKLE, HARRISON & HOWARD IRON CO.
St. Louis, Mo.

SPECIAL BARGAINS.

One 18 x 48	Horizontal	Corliss Engine.
" 16 x 32	"	Wright "
" 14 x 42	"	Wheelock Engine.
" Copeland & Bacon Double-Hoisting Engine, 9 x 10.		
" Worthington Duplex Pump 7½ x 4½ x 10.		

Will be sold low to close.

D. B. CLUICKSHANK,
243 Dyer St., Providence, R. I.

MACHINERY SALE.

38 in. x 36 in. x 12 ft. Pond Planer in good order.	$890
30 in. x 24 in. x 6 ft Planer, with new gears and screws	250
26 in. x 24 in. x 5½ ft. New Haven Planer, in fine order	400
18 in x 10 ft. Engine Lathe, with 9 in. chuck	185
14 in. x 6 ft. Engine Lathe, newly repaired	150
26 in. New Haven B G Drill, good order	160
4 x 6 Horizontal Engine, nearly new	125
8 x 12 Horizontal Engine, good order	160
10 x 15 Horizontal Engine, good order	175

Large stock of new Tools, Engine Boiler, &c Send for stock list. S. M. YORK, Cleveland, Ohio.

ENGINES, &c., FOR SALE.

One pair of 30-inch by 72-inch Horizontal Engines, connected to one main shaft, built by the Corliss Steam Engine Co. Cut Gear Wheel, 24 ft. 9-in. diam., 180 teeth. Jack Gear, 9 ft. 7½-in diam., 70 teeth, with its shaft 12 ft 7 in. long, and two bearings. Valve Gear of the crab-claw pattern. Condensing Apparatus connected to each cylinder, of the Corliss Upright Pump type. The gears and all parts of the Engine are in good condition and are now in operation. These Engines are exceptionally heavy and well adapted for Rolling Mill work, or could be connected to blowing cylinders, air compressors, &c., very readily. Delivery, July 1st, 1888. Also, for sale, about 65 ft. of 7-in. Hammered Iron Shafting with couplings, bearings, &c. Also 4 14 ft. Pulleys, 31-in. face fitted to above shaft. Apply to

JOHN WATERMAN, Treas.,
WARREN MFG. CO., Warren, R. I.
Or to REMINGTON & HENTHORN,
MECHANICAL ENGINEERS, Providence, R. I.

Providence, R. I., May 16, 1888.

ENGINES.

14 in. x 48 in. Corliss Beam.
26 in. x 6 ft. " "
18 in x 48 in. Greene Horizontal.
One pair Corliss Horizontal, 30 in. x 6 ft., first-class, now running.
New Engines, from 2 H.-P., Vertical or Horizontal.

A. B. PITKIN,
Providence, R. I.

FOR SALE.

At less than half first cost, a Delamater Duplex 16 in. x 36 in. Compressor, in thoroughly good working order. Address

L. C BIERWIRTH, Sec'y, Dover, New Jersey.

Rolling Mill Machinery

For Sale.

SHEARS, ENGINES, BOILERS, FLOOR PLATES, &c.

One Heavy Plate Shear, 48-inch throat.
" Large Lever Shear. Cutting old rails.
" Small " " " scrap iron.
" Rotary " " " strips 5-16 in.
" Large Upright " " tops and bot'ms 1 in
" Small " " " ¾ in
" Upright High-Pressure Engine, 16 x 18 in.
Two Winslow Squeezers. One new,
One Dudgeon Steam Hammer, 18 in. diam., 40 in. stroke.
Upright Tubular Boilers, 15 ft. long 60 in. diam.
Cylinder Boilers, 20-24 ft. long, 30 in. diam.
Stacks, 30 to 50 ft. long, 30 in. diam.
One Crane (Iron) about 5 tons.
Two Cranes about 5 tons capacity.
Cast Iron Floor Plates, 2 x 4 ft.
Boshes, Puddle Furnace Castings, Steam Piping (cast and wrought iron).
Blast Pipe, Cinder Buggies, Tanks, Rolls and Housings, &c.
Beam Engine, 14 x 30 in.
" " 30 x 60 in.

The above are in good order, and for sale in lots to suit for immediate delivery.

THOMPSON C. GILL & CO.,

210 S. Third St., Philadelphia, Pa.

SECOND-HAND

DROPS AND LIFTERS

bought, sold, or taken in exchange for new.

BEECHER & PECK,
New Haven, Conn.

ROLL TURNING LATHES, BLOWER AND ENGINE.

One Single " " " 18 in. "
" Upright Engine, 6½ in. x 17 in.
" Root Blower No. 7.
All in good order,

THOMPSON C. GILL & CO.,
210 So. 3d St., Philadelphia, Pa.

FOR SALE.

One 15-Light Dynamo complete, with 15 Arc Lights. New.

DANIEL KELLY,
51 North 7th St.,
Philadelphia.

FOR SALE.

75 Tons Stove Plate.
100 Tons Machinery Iron.
Also Old Iron and Metals of all kinds.

PETTIS & HIGGINS,
301 Fountain St., Providence, R. I.

FOR SALE.—18 x 42 CORLISS ENGINE, built very heavy for the Brush Electric Light Co.; other styles of Automatic and Plain Slide Valve Engines, Boilers and Pumps.

FRANK McSWEGAN,
Dover St. and Franklin Sq.

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

FOSDICK & PLUCKER,
SIXTH and CULVERT STS., CINCINNATI, OHIO.

WANTED.—To buy a Good Second-hand or New 60 in. x 60 in. PLANER, to plane from 15 to 20 feet. If Second-hand, must be of modern design and in first-class order.

FOSDICK & PLUCKER,
Sixth & Culvert,
Cincinnati, Ohio

FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock, Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85, two stories Warehouse, 22 x 30, two stories in rear. Does a large and paying business, which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade. Address

W. L. HAY & SON,
Iowa Falls, Iowa

REMOVAL.

All my stock must be sold. No reasonable offer refused.

1 20 x 48 Corliss Automatic Engine.
1 12 x 42 Green Automatic Engine.
1 12 x 24 in. Horizontal Engine.
1 8 in. x 15 in. " " New.
6 8 in. x 12 in. Ames Engine. Nearly new.
1 5 in. x 10 in. Horizontal Engine.
1 10 H.-P. Horizontal Engine.
1 15 H.-P. High Speed N. Y. Safety Engine.
1 6 H.-P. Baxter Engine and Boiler.
1 4 H.-P. Portable Engine and Boiler.
1 6 Horse-Power Upright Engine.
1 10 Horse Upright Engine
1 5 x 12 Double-Drum Hoisting Engine and Boiler.
2 5 ft. x 16 ft. Horizontal Tubular Boiler.
1 4 ft. x 14 ft. Horizontal Tubular Boiler.
1 40 H.-P. Locomotive Boiler.
1 36 in. x 11 ft. New Locomotive Boiler.
1 12 H.-P. Upright Boiler.
3 15 H.-P. New Upright Steel Boilers.
2 New Steel Yacht Boilers.
4 16 in. x 6 ft. Engine Lathe.
1 14-in Stroke, Hewes and Phillips Shaper.
1 30 in. Back-Geared Drill. Self-Feed.
1 Ames 4-Spindle Drills.
1 Pratt & Whitney 4-Spindle Drill.
1 Double-Spindle Milling Machine.
1 12 in. Heavy Slotting Machine.
1 4 in. Morris & Tasker Pipe Threading Machine.
1 set Rubber Grinding Rolls.
9 Tanks, 8 ft. x 5 ft. x 5 ft. 3 in.
1 Tank, 8 ft. diam. x 8 ft. high.
Nos. 3, 4, 5 and 6 Woodward Steam Pumps.
1 Set Power Shears, cut any width.
4 4 ft. Burr Mills, Complete.
12 Contractors' Side-Dumping Cars.
3 Ingersoll Rock Drills
2 Guild & Garrison Air Pumps.
1 6 ft. Vacuum Pan.

ROBT. J. GRAY,
131st St. and Fourth Ave., New York.

ATTENTION,

Capitalist - and - Foundryman.

An Incorporated Company offers for sale State Rights to manufacture and sell a valuable Patent Boiler (for house-heating). Hundreds in successful operation, which can be referred to for full particulars.

Address Box 663,

WORCESTER, MASS.

New England States reserved

FOR RENT.

VALLEY FORGE MILL AND WATER-POWER

(Belonging to Estate of Charles H. Rogers, dec'd.), Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.
For particulars, address

J. B. CARTER, Hardware Manfg. Agent,
504 Commerce St. Philadelphia.

FOR SALE.—The Northwestern Foundry. Largest and best in Minneapolis. Located on half of block 106 (330 x 165 ft.) and part of block 105, corners Third street, Ninth and Tenth aves., South. Main building (200 x 60 ft.) is brick with slate roof, contains four Cranes, three Cupolas, &c., complete set of Car-wheel and various patterns for Stoves, Machinery, Architectural, Ornamental, Bridge and Railroad Castings. Office also of brick, 40 x 20 feet; fireproof vault and burglar safe in same. Will sell the entire plant, including the valuable Real Estate, Railroad Tracks, Track and Wagon Scales, &c. All the above in first-class order.
Address

MENZEL & FERGUSON,
Minneapolis, Minn

FOR SALE.

One 6 H.-P. N. Y. Safety Engine.
One Vertical Boiler, 60 H.-P. Second-hand.
One 70 H.-P. Buckeye Automatic Engine. Second-hand.
One 25 H.-P. Engine. New.
Two 600 gallon Compound Pumping Engines, with Fly Wheel. New. Address

KEYSTONE ENGINE & MACHINE WORKS,
W. L. SIMPSON, Proprietor,
5th and Buttonwood Sts., Philadelphia.

WANTED, LOCAL

Agents and Traveling Men to sell the most complete stock of Boilers and Engines, Drive Well Points and Tools and Pumps in America.

H. M. SCIPLE,
Bordentown, N. J.

IRON ORE PROPERTY.

For Sale or Lease, situate within three miles of the C. & O. Ry., at White Sulphur Springs, W. Va., about 3000 Acres, underlaid near surface by a persistent seam of red oxide iron ore from 10 to 60 feet in thickness. Numerous analyses show

61 per cent. Metallic Iron.
.07 per cent. Phos.
.05 per cent. Sulphur.

Six miles of outcrop have been proved by a number of openings. The helderberg limestones, more than 300 feet thick, are exposed at many points, and the hills containing the New River coking coals are within sight. There are good sites for furnace plants in the immediate vicinity, and ample water for all purposes. For further particulars, apply to

GENL. JOSEPH R. ANDERSON,
Pres. Tredegar Co., Richmond, Va.
OR
WM. N. PAGE, C. and M. E.,
Powellton, W. Va.

ENGINE PATTERNS FOR SALE.—A BARGAIN.

Patterns complete, of a celebrated and new Stationary and Yacht Engine; from a 3 up to a 16 inch cylinder. Patterns new, with core boxes; excellent condition. To be sold at a sacrifice on account of owner retiring from business. Can be examined any time by calling or addressing the undersigned.

BORDENTOWN FOUNDRY & MACHINE WORKS,
Lock Box 24, Bordentown, N. J.

FOR SALE IN GUILFORD, CONN.

A Factory consisting of a Two story Brick Building, 30 x 70 feet; a Two-story Brick Addition, 22 x 36 feet; a One-story Brick Addition, 14 x 22; a Frame Coal Shed and Store Room; a 40 Horse-power Engine and 50 Horse-power Boiler; a complete line of Shafting, Belting and Steam Pipes for heating; convenient to railroad and tide water, and nearly new; terms easy and price low. Inquire of

CHAS. GRISWOLD,
Guilford, Conn.

FOR SALE

A well-established Hardware and Sporting Goods business, located in Jacksonville, Florida. The stock amounting to from $10,000 to $15,000 will be sold at a sacrifice to close the business; sales last year $60,000. The firm has control of the sporting goods trade in Florida, and lease of the best stand in Jacksonville. Address

C. B. BENEDICT,
Jacksonville, Florida

EXPORT.

The advertisers (English Merchants) having imported American Hickory Woodware for the last 12 years, are anxious to secure the sale of another line of American manufacture. Have a connection with Collieries, Ironmongers, Engineers and Colonial Merchants. American references given. Address "J," Box 44, office of *The Iron Age*, 66 and 68 Duane St., New York.

NEW DRILL GRINDER.

We have for immediate delivery a few more of the Mossberg Drill Grinders. Send for testimonials and description. Simple in construction, quick and easy to operate. Manufactured and sold by

DIAMOND MACHINE CO.,
Providence, R. I.

A GOOD HARDWARE BUSINESS FOR SALE.

Wishing to retire from all active business, the undersigned offer for sale their valuable and thoroughly established business. The stock is clean and well selected. Waverly, New York, is a growing place, with considerable manufacturing, and surrounded by a good farming country; has good water, gas works and sewers, also five railroads radiating from it. The location of the store building is central, with every convenience, including hydraulic elevator, &c. The business has been conducted successfully as wholesale and retail; can be continued as we have conducted it, or else we can soon reduce the stock, and it can be conducted as a retail alone.
In negotiating sale, reference given and required.

MERRIAM BROS., Waverly, N. Y.

FOR SALE.

AN UNUSUAL OFFER.

An old established Hardware Business doing the leading wholesale and retail trade in one of the best towns in Minnesota. This is an opportunity seldom offered. Reason for sale, death of proprietor. Address

H. V. RUTHEFORD,
Attorney-at-Law, St. Paul, Minn.

ASSIGNEE'S SALE.

Smith, Beggs & Ranken Machine Company Property!

Embracing nearly an **Entire Block of City Real Estate** described as follows: The **whole Main Street front of City Block No. 29**; being 240 feet on West side of said street, with a frontage of **160 feet on East side of Second Street; 300 feet on South side of Monroe Street** (entire block front), by **150 feet on North side of Clinton Street**; being Lots Nos. 34, 35, 36, 62 and 63 of said Block; also all the improvements, machinery, fixtures, tools and patterns on the above described premises.
This property (being one of the largest and most complete establishments of the kind in the Western Country) will be sold by the undersigned, by order of Court, at Auction, on the premises, to the highest bidder, for cash, subject to a mortgage of about $60,000, on Tuesday, the 21st day of August, 1888, between the hours of 12 o'clock noon and 2 o'clock p. m. of said day.

WM. H. THOMSON, ASSIGNEE,
at Boatmen's Saving Bank,
St. Louis, Mo., July 9th, 1888.

PROPOSALS FOR STEEL PLATES, &c.—June 30, 1888.—Sealed proposals endorsed "Proposals for Steel Plates, &c." will be received from manufacturers or regular dealers only, at the Bureau of Provisions and Clothing, Navy Department, Washington, D. C., until 11 o'clock A. M., July 24, 1888, and opened immediately thereafter in the presence of bidders, for the supply, at the Navy Yard Washington, D. C., of 32 steel plates, 57,680 pounds; 16 angle-bars, 1,840 pounds; and 8 deck-beams, 624 pounds. Physical character of metal to be: Tensile strength, 70 000 pounds; elongation, 20 per cent.; contraction 35 per cent.; length of specimen (working part) equal to four times the diameter. Time of delivery, on or before August 30, 1888. Tie bids decided by lot. The above articles must pass the usual naval inspection, and a reservation of 20 per cent. will be withheld from the amount of each delivery until the completion of the contract. Bidders are referred to the Commandant at the Washington Navy Yard for specifications, forms of offer, and all information relative to the articles required. The proposals must be made in duplicate on the proper blank forms *and filled out as indicated by the blank.* The Department reserves the right to reject any proposal not considered advantageous to the Government.
JAMES FULTON, *Paymaster General, U.S. Navy.*

ROLLING AND NAIL MILL MACHINERY FOR SALE.

Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).
One 16-in. Nail Plate Train of three stands of rolls, with pinions, tools and fixtures complete.
One 18-in Muck or Forge Train, two stands of rolls.
One 500-Horse-Power Corliss Beam Engine, with condenser, pumps and other connections.
70 Nail Machines.
3 Spike "
3 Guillotine or Plate Shears.
15 Grindstones, fixtures and countershafts.
43 Gould's Patent Nail Feeders.
About 600 ft. Shafting with pulleys; also Lathes, Planers, Drills and all necessary tools to do repairs.
All in perfect running order and will be sold cheap, as a whole or in parts. Above now located at Weymouth Iron Works, East Weymouth, Mass.
Enquire of

J. F. ROGERS, 101 Milk St., Boston, Mass.
or J. M. LEONARD, Somerset, Mass.

AGENCY WANTED

OF

WIRE NAIL MILL

For New York, New Jersey and New England States.
Address "D. G.," Box 91,
Office of *The Iron Age*, 66-68 Duane St., N. Y.

TO LET.

Office and Sample Room.
One half of Basement. All of Subcellar.
HUMASON & BECKLEY MFG. CO.,
80 Chambers Street, New York

FOR SALE.

The Trustees of The Abbott Iron Co., Baltimore, Md., offer for sale, the following:
Hot Rail Saw-Rigging, for cutting to 30 ft., with bed-plate, stands, shafting, gearing, &c.
Gifford Injectors, Nos. 8 and 9.
One Testing Machine, made by Riehlé Bros.
One Railroad Scale, " 32-ft. l'ng
Four Dimpfel Blowers, 24 in. x 60 in.
Apply to

C. H. ASHBURNER,
P. O. Box 65, Baltimore, Md.

WANTED.—A large SHEAR of sufficient strength to cut standard section Iron or Steel Rails, or 5-inch round Iron cold. Address

THE WARREN IRON & STEEL CO.,
Warren, Ohio.

NOTICE.

CANVASSERS WANTED

FOR THE NEW

Milk Shaker.

MANUFACTURED BY

Philada. Milk Shaker Mfg. Co.,

13TH & BUTTONWOOD STS.,

Philadelphia, Pa.

Address the Company, with reference.

AGENCIES WANTED.

Two young men of long experience in Wholesale Hardware business, well acquainted with the trade in Kentucky and the South, solicit correspondence with manufacturers desiring to establish a branch or agency in Louisville, Ky., for Heavy and Light Hardware, Pig Iron, &c.

Address LOCK BOX No. 26,
Louisville, Ky.

AGENCIES WANTED.

The advertisers, two young men, energetic, reliable and experienced in Wholesale Hardware business, solicit correspondence with mannfacturers desiring to establish a branch or agency in Chicago. Address

"C. & L.,"

office of *The Iron Age*, 97 Washington st., Chicago, Ill

TO BRASS AND COPPER MANUFACTURERS.—A man of unquestionable ability, with twenty (20) years' experience in the construction and management of brass and copper works, desires to connect himself with a newly-projected or established works as Superintendent or Manager. The advertiser has had thorough experience in the detail and management of all departments of roll, sheet brass and copper manufacture. Can give best references. Address "BRASS AND COPPER," office of *The Iron Age*, 66 and 68 Duane Street, New York.

FOR SALE.—A first-class Boiler and Sheet Iron Business in a thriving Western city of 100,000 inhabitants. Shop has been in operation eight years and has a growing and profitable business which can be largely increased. Good buildings, power tools, and first-class location on R. R. track. Good reason for selling. Correspondence and investigation from parties meaning business solicited. Address

"WESTERN CITY,"

Office of *The Iron Age*, 66-68 Duane St., N. Y.

ATTENTION, MANUFACTURERS. Wanted the address of manufacturers of "STEEL NOVELTIES" and Malleable Iron Castings, both lines of novelties largely used. Address

LOCK BOX 79,
Louisville, Ky.

AUCTION NOTICE.

AUGUST TRADE SALES
—OF—
CUTLERY
—BY—
HAYDOCK & BISSELL,

Wholesale Auctioneers,

NEW YORK.

On Wednesday, Thursday and Friday, August 8, 9 and 10, 1888, at ten o'clock, each day, at their Salesrooms, Nos. 12 Murray St. and 15 Park Place, New York, large and attractive lines of Table and Pocket Cutlery, Carvers, Butcher Knives, Scissors, Shears, Plated Flat Ware, etc., by order of manufacturers and importers. Full particulars in circulars and catalogues, and in later issues of *The Iron Age*.

HAYDOCK & BISSELL, Auctioneers,
New York.

FOR SALE.

HARDWARE STORE located in one of the largest cities on the New York, New Haven and Hartford R. R. *Established in* 1848. Location best in the city. Will inventory about $12,000. Satisfactory reasons for selling. Address

"N. N. & H.,"

Office of *The Iron Age*, 66-68 Duane St., N. Y.

---

4 dozen Plated Mortise Knobs, 2¼ inches, at $6.00 per dozen.
250 gross Fancy Wood Shutter Knobs, 1½ inches, at 50 cents per gross.
For sale by

JOHN BROWER,
P. O. Box 1423,
New York.

FOR SALE.

A rare chance is offered for the purchase of one of the oldest Wholesale Hardware Stores in the South (established 1839); a clean, well assorted stock; no shop worn goods; stock will inventory $30,000; can be reduced if so desired; good reasons for selling. For particulars address

"BUSINESS," Box 234,

Office of *The Iron Age*, 66-68 Duane St., New York

WANTED.

Two or three good lines of
STAPLE GOODS IN HARDWARE

by a first-class salesman visiting the jobbing trade in the West and Northwest. Address

"STAPLES,"

Office of *The Iron Age*, 95 Washington street, Chicago, Ill.

TO LEASE.—Pipe Iron Mill and Water-Power situated at Boonton, N. J., on the D., L. & W. R. R. and Morris Canal, 30 miles from New York City. The Mill consists of two trains, run by a Water-Wheel 18 x 27, with a 26 ft. fall. There are three sets of Housings in the train containing, respectively, an 18-inch Roughing, reducing and finishing rolls for Nail Plate. Also two Heating Furnaces on each Mill, adapted to either Draft or Blast. Also Tools, Scales, Lathes, Grindstones, &c. All the power necessary for running the Shears, Hoists or Machinery of any kind may be derived from the Main Water-Wheel. Rent based upon the product that is turned out. Address,

Estate J. C. LORD, 68 Wall St.

WANTED.—To communicate with parties who can furnish Castings for a set of 10-foot boiler-maker's bending rolls.

STRUTHERS, WELLS & CO.,
Warren, Pa.

FOR SALE.

Nice clean stock of general hardware, stoves, &c., with tin shop in connection; will invoice about $5000. Located in thriving town of 5000 inhabitants, situated on two lines of railroad, within twenty-five miles of Minneapolis. Well-established business. Satisfactory reason for selling. For further particulars inquire or address

MILLER BROS. & FLETCHER,
119 & 121 2nd St., So., Minneapolis, Minn.

WANTED—AGENCY for Sheet Iron and Wire Nail Mill for Western Territory. Best of references. Address

"NAILS,"

office of *The Iron Age*, 95 Washington Street, Chicago, Ill.

RECEIVER'S SALE OF FOUNDRY PROPERTY AND MACHINERY.

I, the undersigned Receiver of the property of S. S. Hepworth & Co., will sell at Public Auction on the premises at Glenwood Station, Yonkers, N. Y., on the third (3d) day of August, 1888, at half-past eleven o'clock in the forenoon of that day, the factory property and water privileges connected therewith.

Also all the personal property contained therein, consisting of a 25-ton travelling crane, ordinary cranes, lathes, boring mills, general machinery used in foundries, pig iron, scrap iron, iron bolts, wood patterns, steel tools, office furniture, &c., &c.

Catalogues furnished and terms made known on day of sale.

H. T. DYKMAN, Receiver.

ENGINES FOR SALE.

1 Horizontal Engine, 18 x 44, about 60 horse-power; 8-inch Wrought-Iron Shaft, about 8-ton Fly-Wheel in Segments, made by Fishkill Landing Machine Co. In good order.
1 Horizontal Engine, 12 x 30, about 35 horse-power; 6-inch Wrought-Iron Shaft, 14 ft. Fly-Wheel in Segments, manufactured by J. S. Bunce & Conwork. In good order.
1 Todd & Rafferty Hoisting Engine, two 10-inch Cylinders with 14-inch stroke, about 35 horse-power. In fair condition.
1 Todd & Rafferty Hoisting Engine, two 12-inch Cylinders, with 16-inch stroke, about 45 Horse-Power. In fair condition.
1 Horizontal Corliss Engine, 18 x 44, 65 horse-power, 9-inch Wrought-Iron Shaft, 9-ton Fly-Wheel. In good order.

Estate of J. COUPER LORD,
68 Wall St., New York.

FACTORY LOCATIONS.

Correspondence invited from manufacturers seeking new locations, or from parties wishing to engage in manufacturing enterprises.

Full information given regarding the many advantages offered by our city as a manufacturing centre, among them being 16 lines of railroads; coal at 50 cents per ton, &c., &c,

Address,

J. E. CLAREY,
Acting Secretary,
The Commercial Exchange,
Des Moines, Iowa.

A RARE OPPORTUNITY.

CLAPP-GRIFFITH STEEL PLANT
FOR SALE.

Consisting of one 3-ton converter, complete, with bottoms, hydraulic cranes, ladles, pumps, cupola crusher and pan, drying ovens, castings, accumulator, hydraulic valves, piping, etc., ready for erecting.

Also, one 2-high 20-inch muck train, with engine, 26 in. x 72 in., fly wheel, shaft and three extra sets of rolls. Will roll 2½ in., 3 in., 4 in. and 6 in.; in excellent condition.

All of the above can be purchased very low. For full particulars address

SCOTT & McLEAN,
Room 46, Lewis Block,
Pittsburgh, Pa.

NOTICE
TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia please address

J. B. CARTER,
Hardware Manufacturers' Agent,
504 Commerce Street, Philadelphia, Pa.

PRICE BOOKS.

LARGE SIZE, 500 Pages, 6 x 9½ in. each, $8.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

B. LAMBERSON,

PORTLAND, OREGON.

EXCELLENT BLACK COPIES of *anything written* or *drawn* with *any* Pen (or Type Writer) by the Patent

AUTOCOPYIST Only equaled by Lithography. Specimens free.

AUTOCOPYIST CO., 166 William St. New York

MR. HARDWARE

dealer and traveling man, take due notice that I give 20 per cent. from my regular established prices on Boilers and Engines. Write for Catalogue. Also the largest stock of Drive Well Points and Tools and Pumps in the country.

H. M. SCIPLE,
Bordentown, N. J.

SEALED PROPOSALS will be received by the Board of Chosen Freeholders of the county of Camden, N. J., addressed to the Chairman of the Special Committee on County Buildings, care of John Harris, Clerk, No. 434 Federal Street, until Thursday, August 2d, at 1 o'clock, p. m., for the construction and erection of 54 cells, of either steel or iron, to be placed in the north wing of the new jail on foundation already complete to the first floor.

Said cell work to be complete in every respect, including ventilating, plumbing, etc. Each bidder to furnish complete plans and specifications showing clearly the construction and materials to be used. Each bidder will be required to deposit with his bid a certified check for $500 as security that he will enter enter into contract if awarded him.

Committee reserves the right to reject any and all proposals.

ELWOOD EVANS, Chairman,
Marlton, N. J.

WIRE NAIL MACHINE.

For sale cheap; second-hand Wire Nail Machine; will make 4-inch Nails and smaller.

INQUIRE AT

65 ELIZABETH STREET,

NEW YORK CITY.

A PUSHER with $3000 capital can secure ¼ interest in a job foundry situated in the heart of a city of 250,000 population. Grand chance to the right man. Reference exchanged. Address "E. S.," care of E. S. Adams, Cleveland, Ohio.

FOR SALE.

One Second-hand Twiss Automatic Engine, 10x20; also new Automatic Engines, from 20 to 100 h.-p., and Vertical Engines, 4, 6 and 8 h.-p.
NELSON W. TWISS, New Haven, Ct.

WILL EXCHANGE my valuable Store and Flat property in Brooklyn, N. Y., paying over 10 per cent. net on the investment, for a stock of Hardware worth $30,000, without real estate. Give inventory and character of goods. "D. B. S.," office of *The Iron Age*, 66 and 68 Street, N. Y.

WANTED.

HARDWARE SPECIALTIES to manufacture or will buy good patents. Address with particulars

"C. T. G.,"

Office of *The Iron Age*, 66-68 Duane St., N. Y.

WANTED.—Square and Rectangular Steel Wire. Manufacturers who can supply at low cost Square or Rectangular Steel Wire, 14, 15 and 16-inch gauge, can obtain further particulars by addressing "Wire A," Office of the *The Iron Age*, 66 and 68 Duane St., N. Y.

AN IRON CO. having large quantity of orders, a well-equipped, newly built and well located Plant, for the manufacture of Steam-Heating Material, such as Radiators, Pipe Fittings, &c., and worth about $50,000, net, wish to increase their capital and business and obtain from $10,000 to $30,000, and a gentleman capable of managing office affairs. It is the only concern of the kind in the Northwest, and the trade in this section is unlimited. Address, "Iron Co.," Room 7, Gilfillan Building, St. Paul, Minn.

TO BLAST FURNACEMEN.

A large lot of Watson's Fire-Brick, new, for sale cheap.
"W. H. Z.," P. O. Box 1071, N. Y. City.

VALUABLE PATENTS FOR SALE.—English, German and French Patents on a Light Specialty suited to the HARDWARE and GUN TRADE. Owners now working the United States Patent with profit. "P. O. Box, 472," Pittsburgh, Pa.

WANTED.—By a Philadelphia house a special partner with $20,000 to $25,000 to increase the capital of an established and well paying Iron and Steel business. Address "CAPITAL," office of *The Iron Age*, 220 So. 4th St., Philadelphia, Pa.

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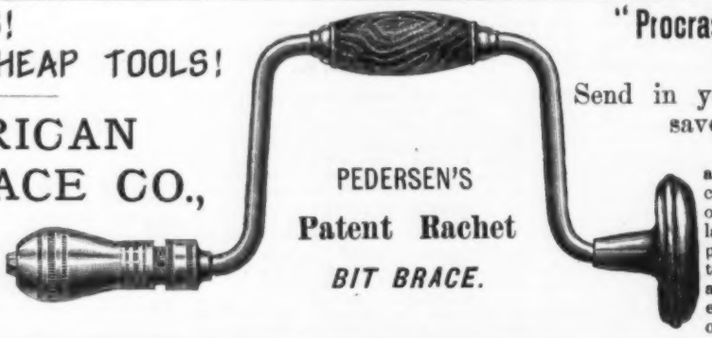

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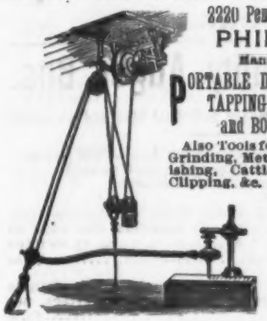

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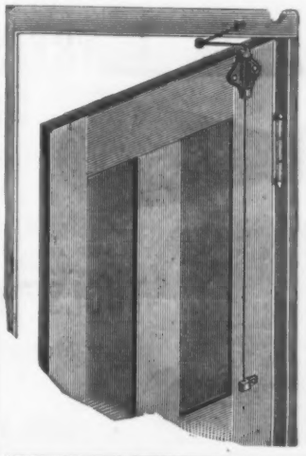

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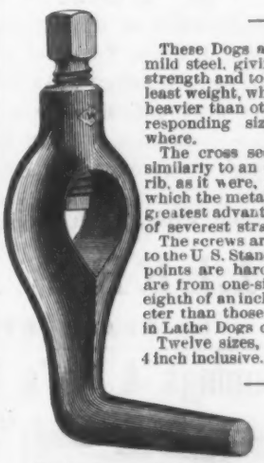

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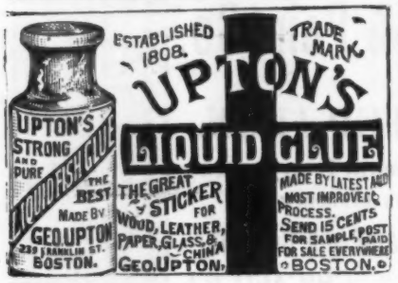

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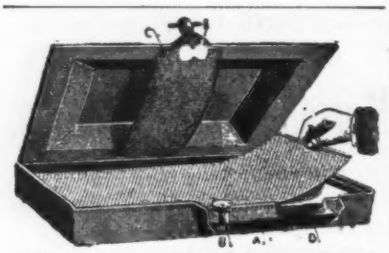

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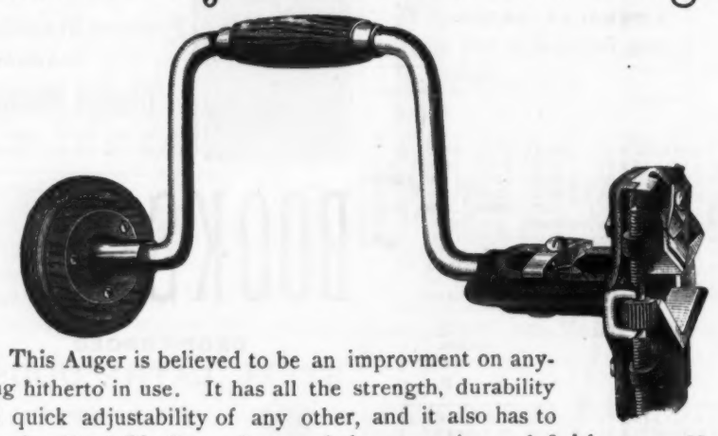

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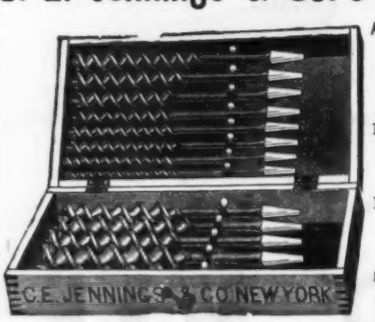

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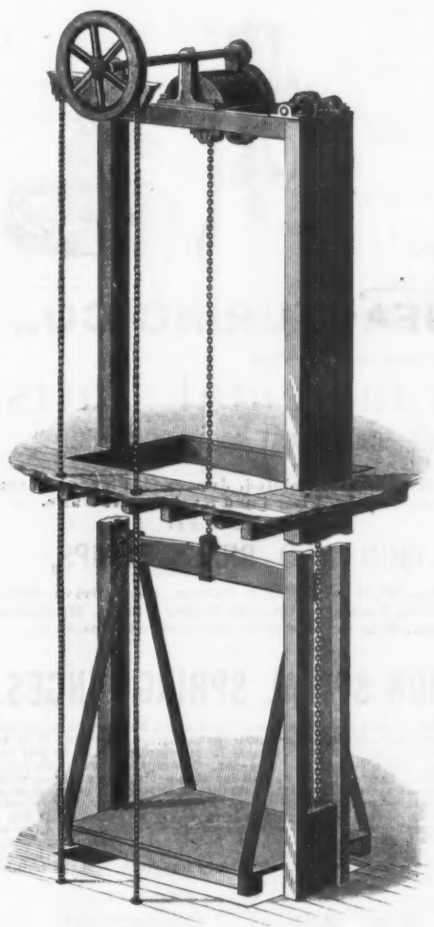

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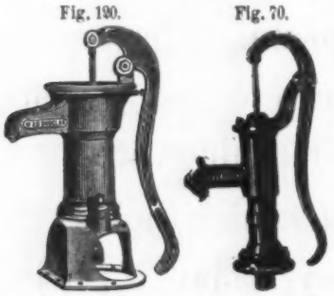
Fig. 190. Fig. 70.



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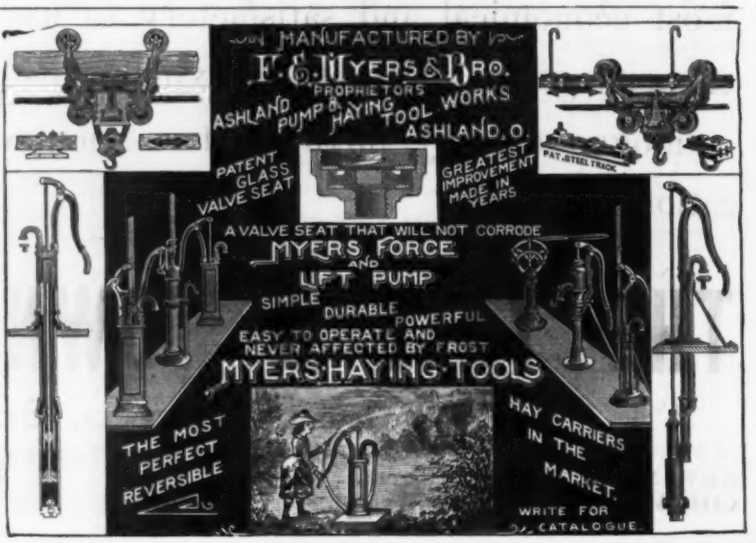

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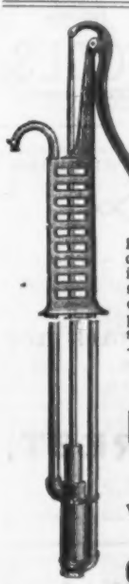

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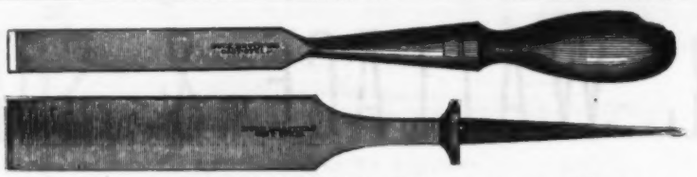

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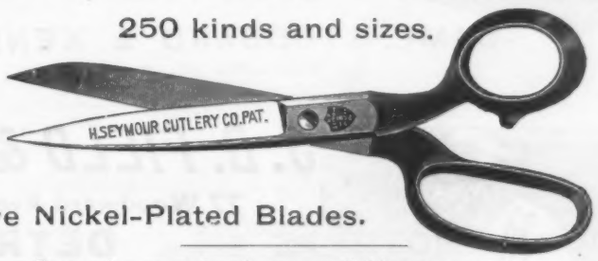

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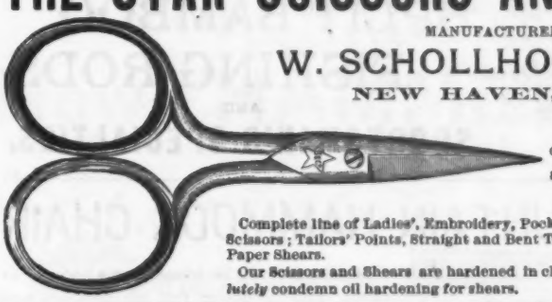

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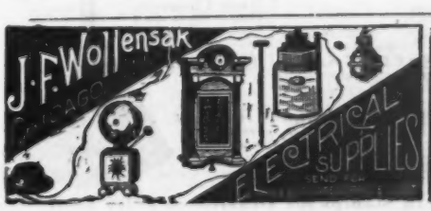

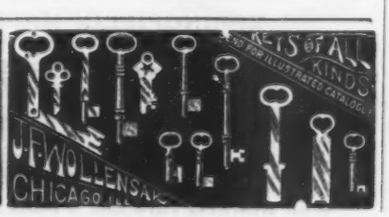

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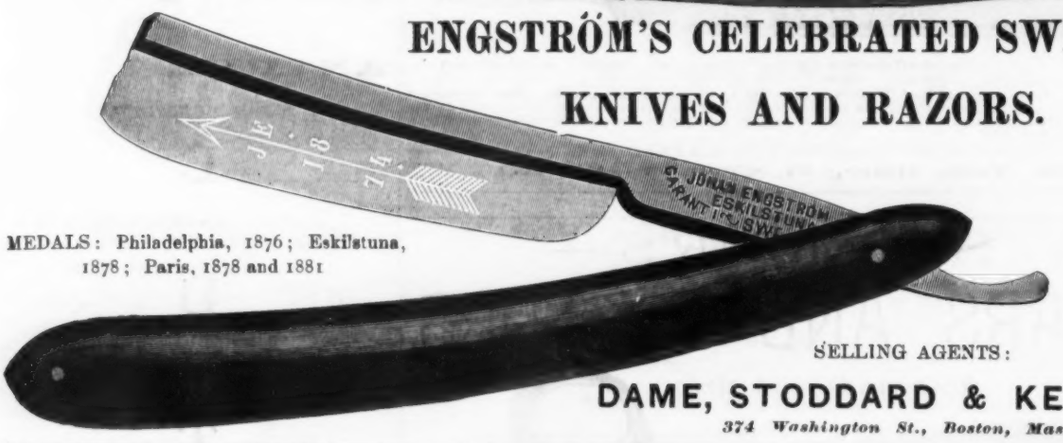

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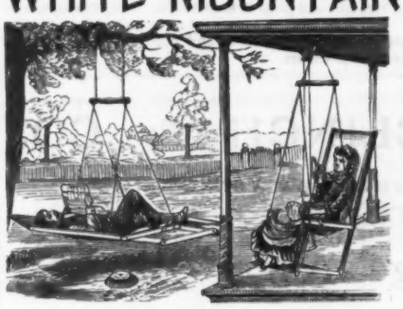

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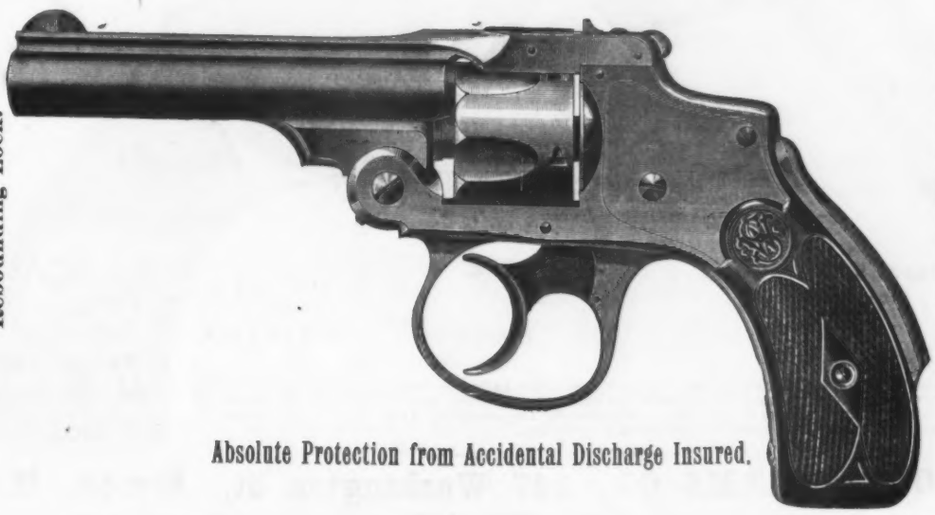

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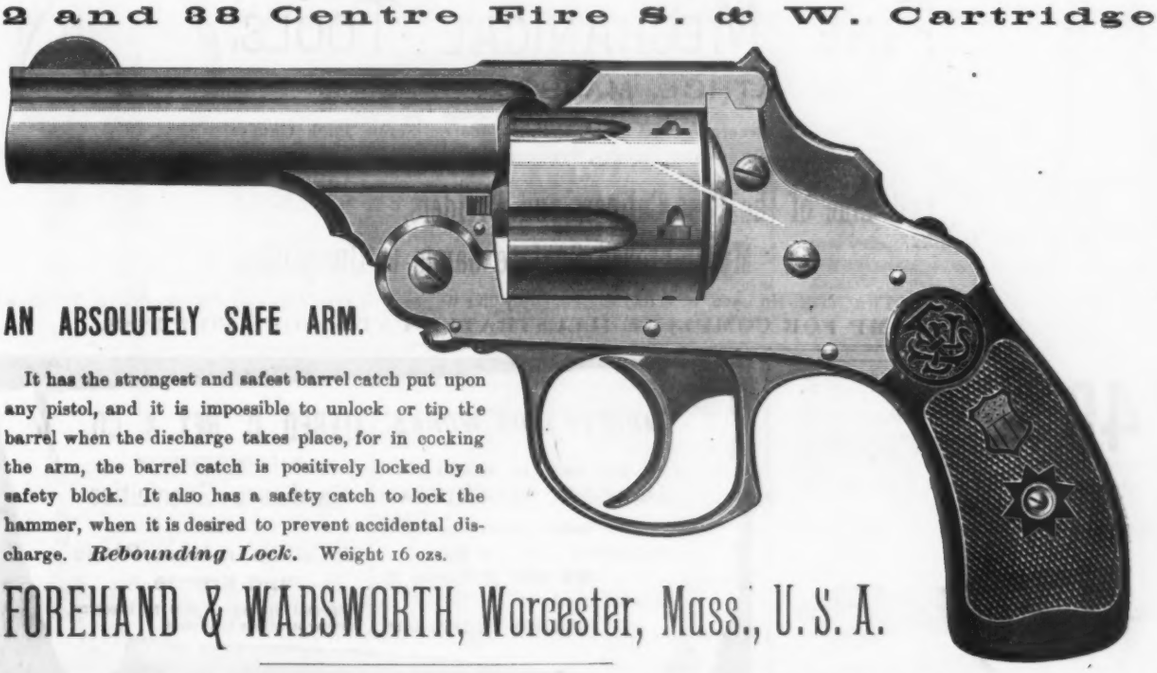

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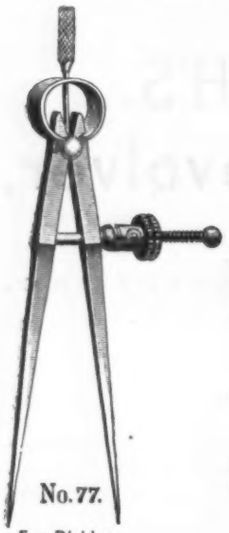

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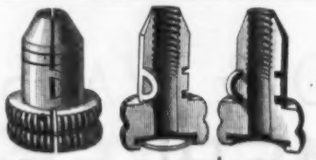

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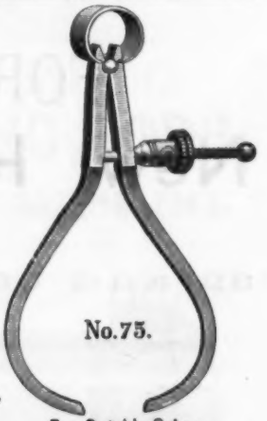

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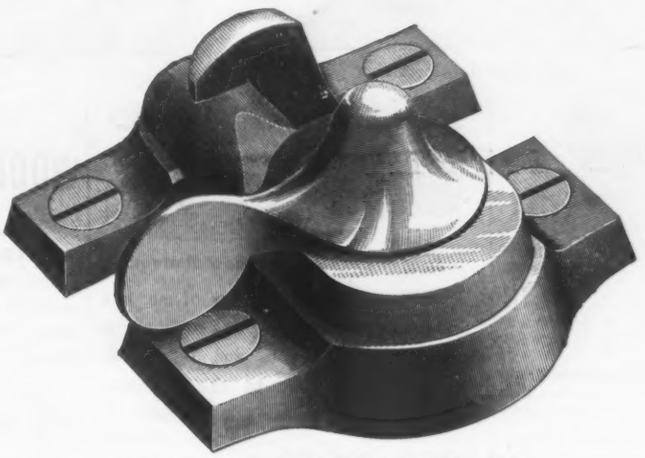

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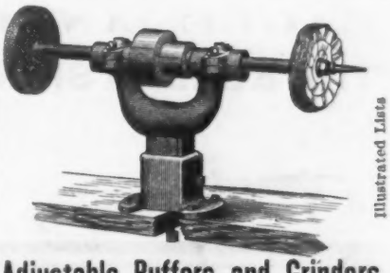


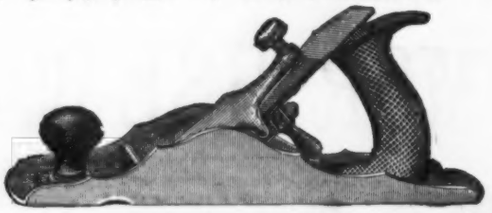
Illustrated 15pp. List

Adjustable Buffers and Grinders,

SPINNING LATHES, CIRCULAR SAWS, &c.

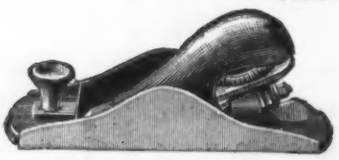
P. PRYIBIL, 467 W. 40th St., New York.

CHAPLIN'S PATENT IRON AND WOOD BOTTOM PLANES.



Jacks and Jointers.

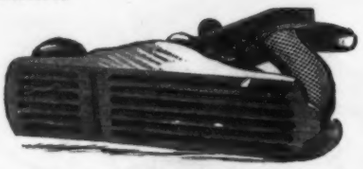
Jack Plane.—Nos. 77, 78.



Nos. 20 and 30 Blocks.

These planes (*with a smooth face*) have been in the market for many years, obtaining a steadily increasing trade as they have become known. We claim for them the utmost simplicity of construction, prompt adjustment and superior beauty of style and finish.

The clamp plate and lever are nickel-plated; the handle is of checkered rubber, which is stronger than any wood handle, and affords an easy, firm grip—also made with nickled iron handle.



Smooth Plane, Corrugated Bottom.

This Cut shows the surface of our new Corrugated Iron Planes. The corrugations afford ample air spaces, and reduce the traction and friction to the minimum. Same price as smooth face.

Corrugated face.	Smooth face.	
	No. 202, Iron Smooth Plane, 7x1¾ in. Cutter	$3.00
	No. 203, Do., do., 8x1¾ in. do.	3.52
	No. 204, Do., do., 9x1¾ in. do.	3.85
No. 1205	No. 205, Do., do., 9x2 in. do.	3.50
	No. 206 Iron Jack Plane, 12x2	3.85
No. 1207	No. 207, Iron Jack Plane, 15x2¼	4.25
No. 1208	No 208, Iron Fore Plane, 18x2¼	5.00
No. 1210	No. 210, Iron Joiner Plane, 22x2¼	5.75

Corrugated face.	Smooth face.	
	No. 211, Iron Joiner Plane, 24x2⅜	$6.75
	With Adjustable Throat.	
	No. 233, Iron Smooth Plane, 8x1¾	3.50
No. 1255	No. 255, Iron Smooth Plane, 9x2	3.75
	All of these Planes are nickel plated finish.	
	No. 20, Block Plane, Japanned, 6⅛x1¾ in. Cutter	1.40
	No. 30, Block Plane, Nickel Plated, 6⅛x1⅝ Cutter	1.65

OUR NEW

WOOD BOTTOM PLANES.

The Clamping Plate and Lever are nickel-plated; the Beechwood has been thoroughly seasoned and is a thicker block than usual, though the Plane is no heavier than those already in the market.

No. 72.	Smooth Plane, 7 x1¾ inch Cutter,	$2.00
" 73.	" " 8 x1¾ " "	2.00
" 74.	" " 8½ 2 " "	2.00
" 75.	Handled Smooth Plane, 9x2 in. Cutter,	2.50
" 76.	" " " 10x2⅜ "	2.75
" 77.	Jack Plane, 15x2¼ inch Cutter,	2.35
" 78.	" " 15x ¼ " "	2.60
" 79	Fore Plane, 18x2⅜ inch Cutter,	2.75
" 80.	" " 20x2⅜ " "	2.75
" 81.	Jointer Plane, 22x2¼ inch Cutter,	3.00
" 82	" " 24x2¼ " "	3.10
" 83.	" " 26x2⅜ " "	3.25
" 84.	" " 28x2⅜ " "	3.25

The Adjustable Mouth Smooth Plane is a new feature, and meets with a great deal of favor.

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WM. FRANKFURTH HDW. CO., Milwaukee.
McINTOSH, HUNTINGTON & CO., Cleveland.
FARWELL, OZMUN KIRK & CO., St. Paul.
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ESTABLISHED 1843.

MORE THAN 200 DIFFERENT PATTERNS.

None Genuine without our Trade-Mark,

EAGLE and "FISHER" Stamp.

Face in one piece of BEST TOOL CAST STEEL, PERFECTLY WELDED, perfectly true, of hardest temper, and never to come off or "settle." Horn of tough *untempered steel*, never to break or bend. *Only Anvil made in United States fully warranted as above.*

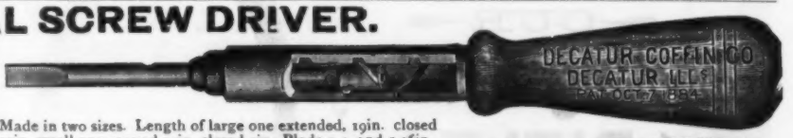
FISHER DOUBLE-SCREW VISE

IS FULLY WARRANTED STRONGER THAN ANY OTHER LEG VISE, AND ALWAYS PARALLEL. Is the best Vise for Machine Shops and Blacksmiths, and for all heavy work. ACCURATE AND DURABLE. Send for Circular.

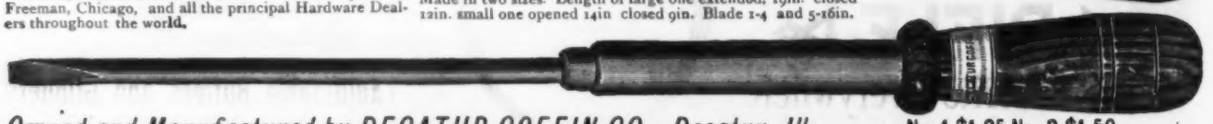
EAGLE ANVIL WORKS, - Trenton, N. J.

THE EUREKA SPIRAL SCREW DRIVER.

By pushing on the end of handle it will drive a screw in ¼ of the time of the old method. Sold by C. E. Jennings & Co N. Y.: Hibbard, Spencer, Bartlet & Co., Chicago: Simmons Hardware Co. St. Louis: Walbridge & Co. Buffalo, N. Y.: Carlin & Fulton, Baltimore, Md.: Burdett & Williams, Boston: Biddle Hardware Co. Philadelphia: A. Freeman, Chicago, and all the principal Hardware Dealers throughout the world.



Made in two sizes. Length of large one extended, 19in. closed 12in. small one opened 14in closed 9in. Blade 1-4 and 5-16in.



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BUTTON'S

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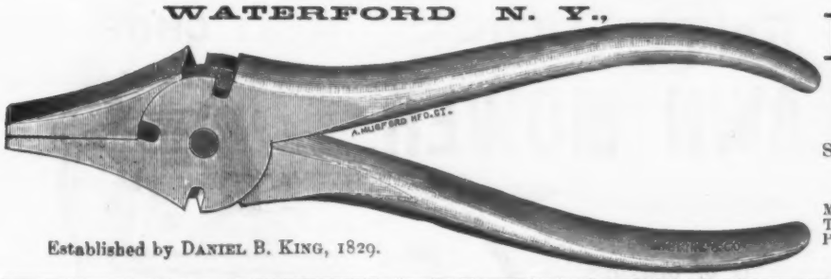
AND PLIER COMBINED.



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Also Manufacturerers of BLACKSMITHS' and MACHINISTS' STOCKS and DIES, PLUG and TAPER TAPS, HAND, NUT and SCREW TAPS, PIPE TAPS and REAMERS.

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Established by DANIEL B. KING, 1829.

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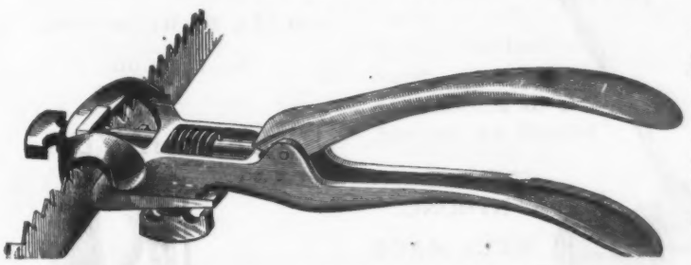


On the application by the administratrix of the estate of the late Asa Farr, for the appointment of a receiver, the New York Supreme Court decided that the business in saw-sets carried on by Mr. Charles Morrill, at 64 College Place, since the death o Mr. Farr, belonged to the Farr estate—the court saying:

"After Farr's death Morrill could not seize upon the books office and assets of Farr's businessand by an usurpation of owner ship undertake to substitute himself in Farr's place in the busi ness the latter had built up."

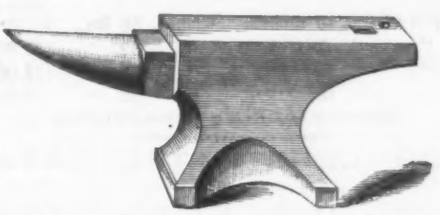
Under the instructions of the court I shall continue the manufacture and sale of the Morrill saw-set.

CHAUNCEY S. TRUAX, Receiver in FARR *vs.* MORRILL,
64 College Place, New York City.

Peter Wright's Patent Solid Wrought Anvil.

PETER WRIGHT PATENT SOLID WROUGHT

Fac-simile of Trade Mark.



Fac-simile of Green Label.

By Royal Letters Patent.

V. R.

PETER WRIGHT'S
SOLID WROUGHT
ANVIL
Made of Best Scrap Iron!
THE SICK FACE AND END ALL IN ONE SOLID PIECE!

The high reputation attained by these Anvils has led makers of an inferior anvil to imitate the brand, with the view of thereby more readily marketing their goods. The trade is cautioned in buying to see that each anvil is stamped with the full trade mark on one side and has the green label affixed to the other; fac-similes of both are shown above.

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By WM. H. MAHER.

PRACTICAL HINTS FOR CLERKS AND YOUNG BUSINESS MEN

On Buying and Selling Goods, Selling Goods on the Road, Business Correspondence, Drumming, and all Matters Pertaining to Business.

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The First Step.
Taking Hold.
The Retail Clerk.
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Personal Expenses.
Lessening Competition.
"Telling Tales out of School."
Anchors.
A Step Higher.
At the Desk.
Cash.
Selling Goods
The Traveling Man.
Leaves from a Drummer's Experience.
A Drummer's Experience—Continued
"On the Road"—Selling.
"On the Road"—Collecting.
"On the Road"—Collecting—Continued.
"Will you be a Partner?"
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Cold Handle Sad Irons.

Three Irons, One Handle and Stand constitute a set.

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ADVANTAGES:

Simplicity of Construction,

Ease of Adjustment,

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Lightness.

Can be regulated so that the Grass when cut will be left standing from ½ to 2 inches in height, as desired.

STRONG, WELL MADE AND CHEAP.

		PRICE.
Width of Cut, 10 inches.	Weight, 30 lbs.,	$13.00.
" " 12 "	" 32 "	15.00.
" " 15 "	" 35 "	17.00.
" " 18 "	" 38 "	21.00.

Diameter of Driving Wheels, 7 inches.

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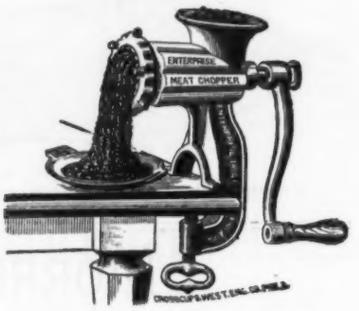

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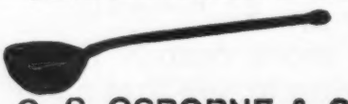

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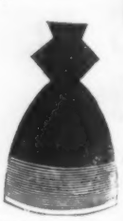

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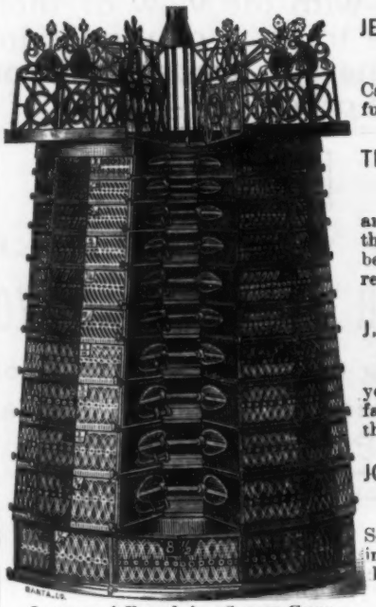
Westphal's Improved Revolving Screw, Bolt and Shot Cases.



Improved Revolving Screw Case.

JENNISON & CO., *Hardware.*

BAY CITY, Mich., Dec. 8, 1887.

We have used a Westphal Revolving Screw Case for the past five years. Find it very useful and would not be without one.

JENNISON & CO.

THE GUNN HARDWARE CO.

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We are using Westphal's Revolving Screw and Bolt Cases in our retail stores and appreciate their usefulness. We consider them the very best articles in their line and take pleasure in recommending them to the trade.

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I have used the Westphal Screw Case four years and can truly say that it gives entire satisfaction. I consider it the greatest invention in the line of Screw Cases.

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I have been using a Westphal Revolving Screw Case for five years and find it satisfactory in every way and only regret that I did not take the largest size.

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CIRCULAR, BAND, GANG and CROSS-CUT SAWS.

Every Saw Warranted.

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Western Agents for Tanite Emery Wheels. *Write for Catalogue and Prices.*

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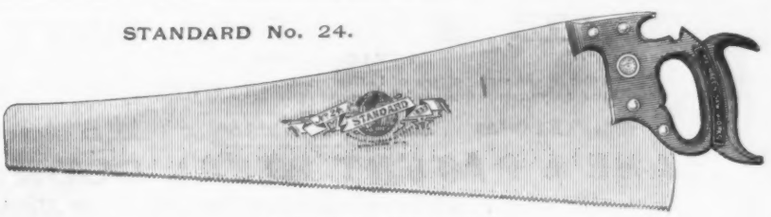

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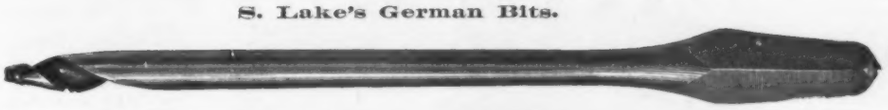

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We are the oldest and largest Faucet House in the United States, making Faucets our specialty.

This Faucet cannot be equaled in quality at the price. Packed one size in a barrel.

Average weight per Bbl., 100 lbs.

Nos.	0	2	4	6	8
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Bbls. contain about	30	27	24	15	14 doz.

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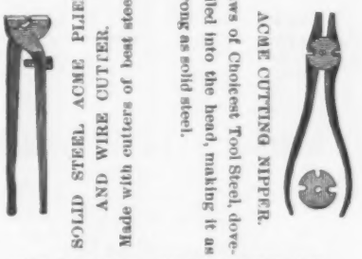

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HIGGANUM HARDWARE CO.,

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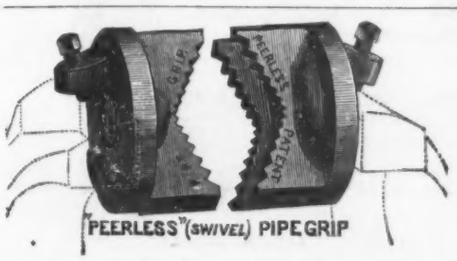

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M'f'rs of all kinds of Vises,

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NEW SELF-SETTING PLANE

Sample sent for trial as per our Circular if local dealers do not keep it.

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TUCKER & DORSEY MFG. CO., INDIANAPOLIS, U. S. A.

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WOODENWARE AND HARDWARE SPECIALTIES.

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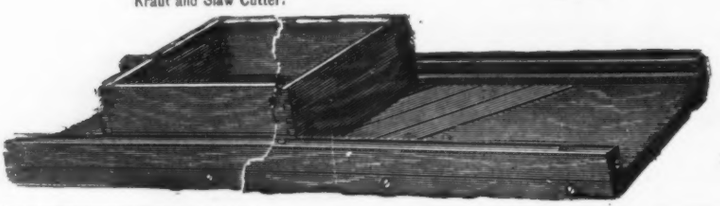

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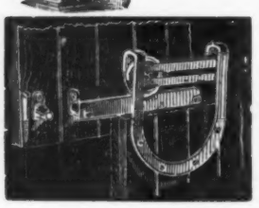

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LANE'S PATENT STEEL DOOR HANGER.

The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. **LANE'S PATENT TRACK** is made ofsteel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

Manufactured by LANE BROS., Poughkeepsie, N. Y.

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"We recommend it for oiling our Mowers. It will not gum."
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A half pint of fine oil hermetically sealed, in an attractive package, ready for use.

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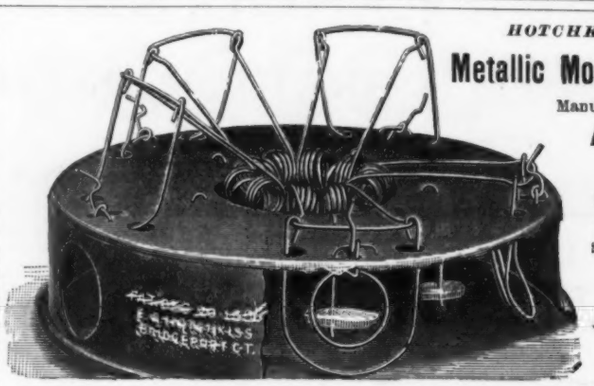
SOLD BY ALL HARDWARE JOBBERS.

HOTCHKISS PATENT



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E. S. Hotchkiss,
BRIDGEPORT, CONN.
Both Self-Setting.
Send for Illustrated List.
Samples by mail, 15c. and 25c. respectively.

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Porcelain Lined Lemon Squeezers

Best Common Mouse Traps, Steak Hammers, Boot Jacks Lap Boards, Beacon Hill Pat. Mouse Traps, Mallets, Bung Starters, Hand Screws.

Ripley Mfg. Co., Unionville, Conn

NEW UNION RAT TRAP.

The only Practical Self-Setter. SAMPLE TRAP FREE. Manufactured by
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Step and Extension Ladders,
Clothes Bars, Clothes Wringers, etc.

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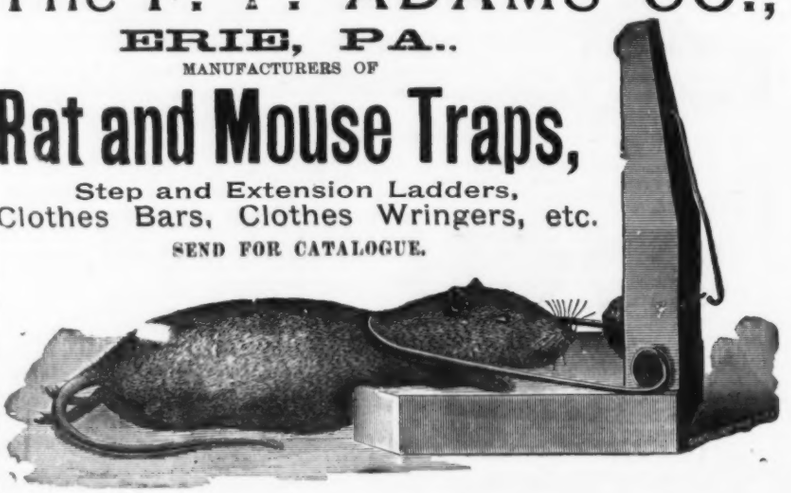

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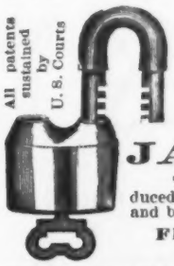

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JAIL PADLOCKS,

The only durable low-priced Scandinavian padlock ever produced, 34 different grades and sizes, all malleable iron. Red, black and bright brown Japanned

FLAT STEEL KEY LOCKS A SPECIALTY.

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WIGGER'S
PATENT SASH LIFTERS

A simple contrivance designed to facilitate the Raising and Lowering of

ONE-LIGHT SASHES.

Nearly all modern buildings are constructed with single light sashes, the raising and lowering of which is attended with difficulty

The adjustment of the lower sash is especially inconvenient when screens are used.

These Sash Lifters will be found indispensable in overcoming this constant annoyance.

Latching is facilitated, window sticks and hooks done away with, springing the sash and loosening the glass prevented, &c.

Made of a strip of concave-convex metal, with knobs pressed up, and fitting over the bead on the side rail of sashes.

Made in any size from 28 to 44 inches in length.

Sample Cards, Price Lists and Circulars on application.

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MANUFACTURERS OF FINE DOOR KNOBS,

No. 169 HIGH STREET,

GEO. F. WHITING, (FORT HILL SQUARE.)
President and Manager.

THE peculiar qualities of the Knobs made by the Boston Knob Company are, their great *strength, beauty* and *durability.*

Unlike all others, they improve in appearance, while bronze, brass or wooden knobs commence to depreciate as soon as used. The Knobs manufactured by this Company do not require cleaning or polishing.

They are furnished in a variety of colors to harmonize with the finish or decoration of rooms.

They are warranted to wear as long as any knob made. This Company use the *New Boston Spindle.*

Send to the office of the Company for prices, or to any leading wholesale hardware dealer.

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Manufacturers of the Standard

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(Liesches' Patent). Cheapest, strongest and only practical Automatic Lock and Holder in the market.

Sales constantly increasing. 1783 gross sold in 1887. Send for latest quotations, 50 % reduction. Must sell 5000 gross this year.

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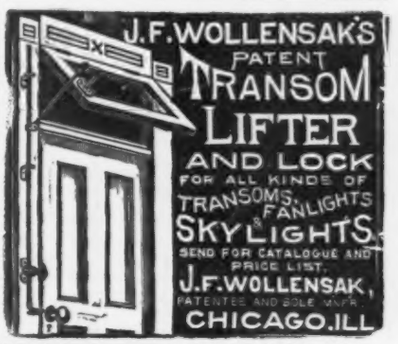
Security Sash Lock

Patented Nov. 9, '86.

Anti-Rattler.

The Claflen Mfg. Co.,
Cleveland, Ohio, U. S. A., Sole Manufacturers.



Pat. Dec. 15—88.

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DOOR FASTENERS,
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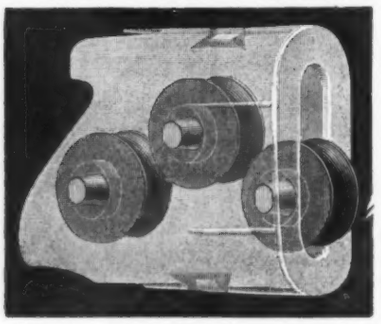

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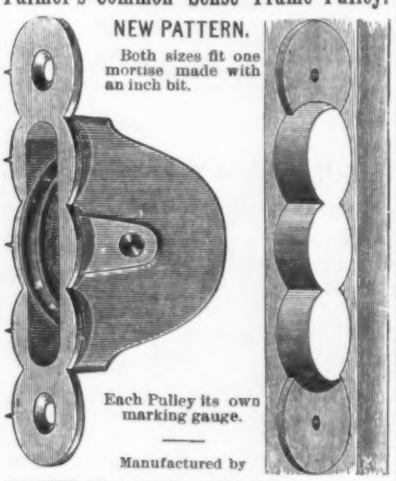
Both sizes fit one mortise made with an inch bit.



Each Pulley its own marking gauge.

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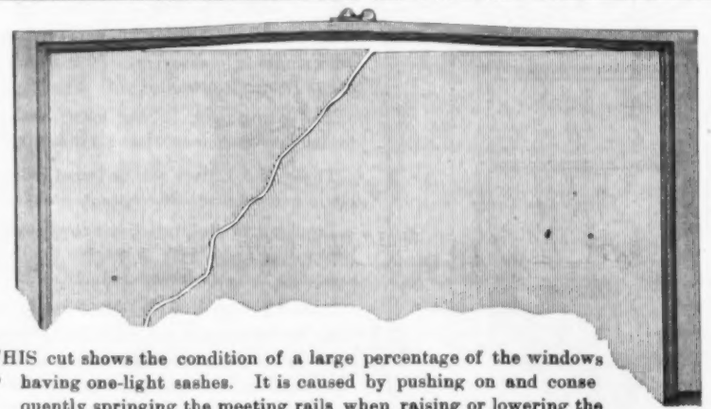

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Works very easy. Is STRONG and combines ALL the BEST Features of an Anti-Friction Hanger.

4-inch Wheel, 6 foot Run, $15.00 per doz. prs.
" inch " 10-foot " 18.00 " " "

Would be Glad to Quote you Prices.

TERRY MANUFACTURING CO.,

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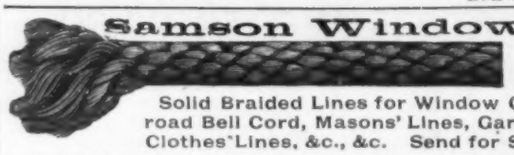
Samson Window Cord.



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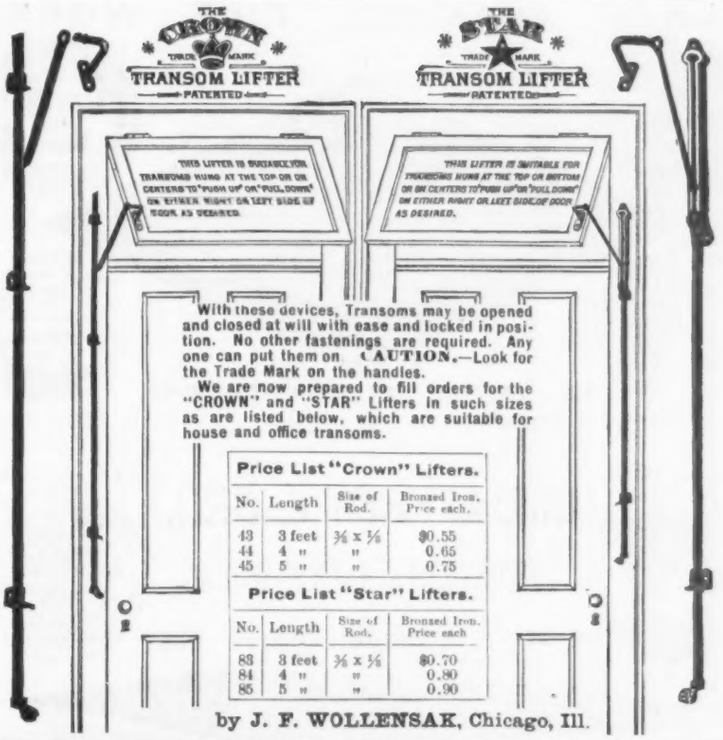
J. P. TOLMAN & CO., 164 High St., Boston, Mass.



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8 inch, per doz	$4.20	14 inch, per doz	$6.00
10 inch, "	4.80	16 inch, "	7.50
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We own all the Patents. Beware of Infringements.

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HALF SIZE.
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These locks are being received with universal and enthusiastic approval by Architects, Builders, and Hardware Dealers everywhere. All bear testimony to their unequalled merits.

☞ Salesmen wanted. — For further information, address the sole manufacturers,

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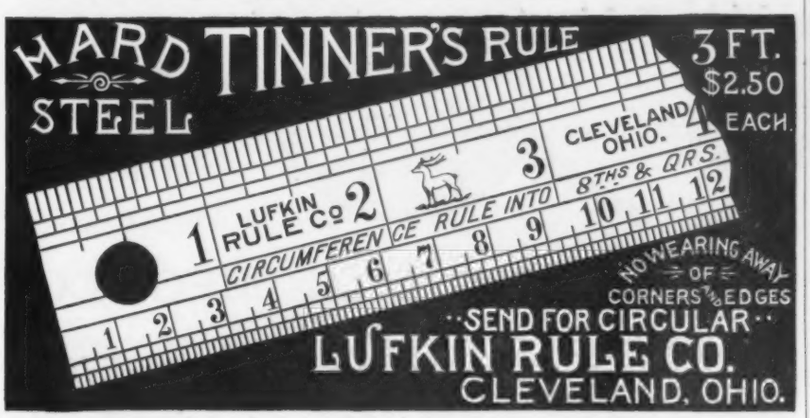

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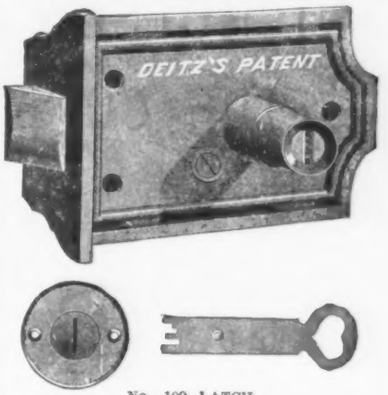

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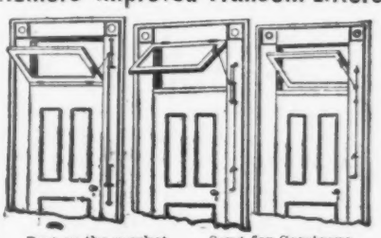
Factory, **BROOKLYN, E. D., N. Y.**

Reihers' Improved Transom Lifters



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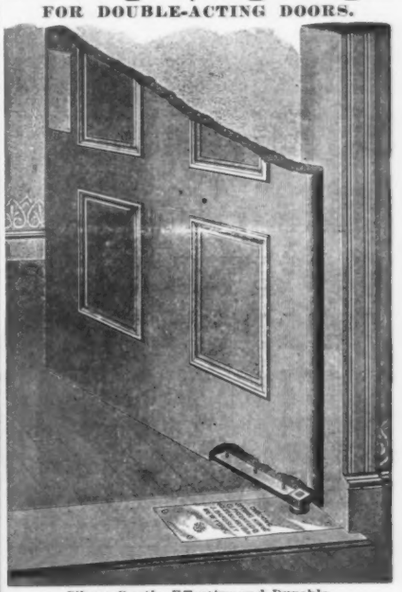

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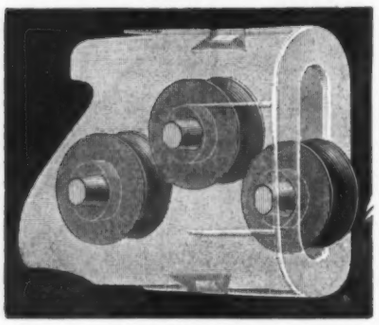

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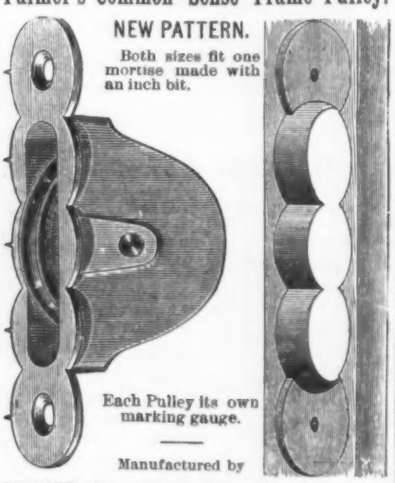

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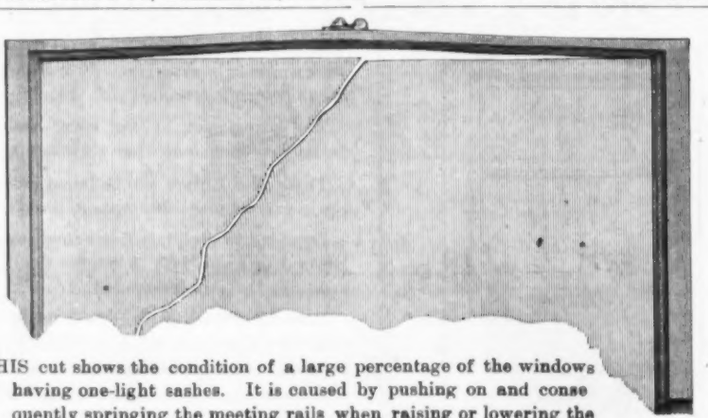

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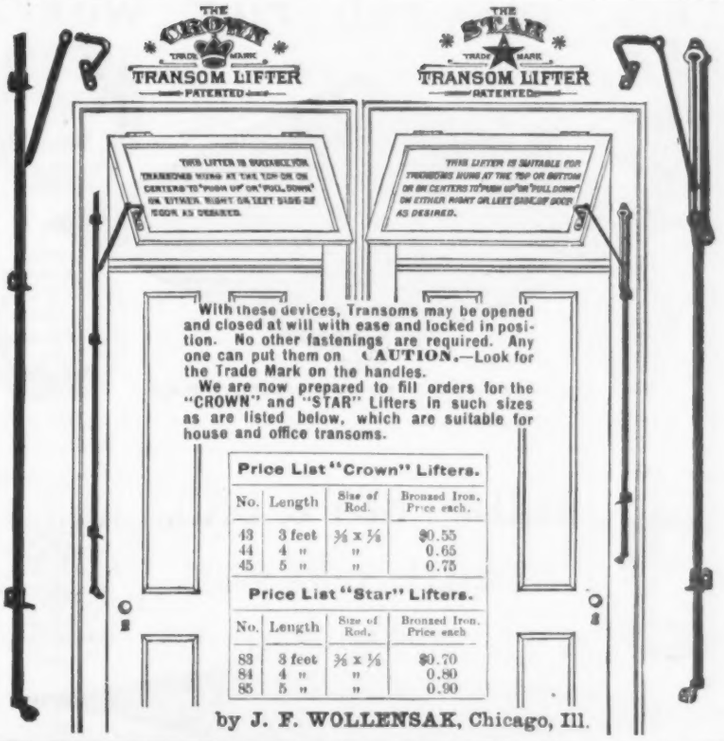

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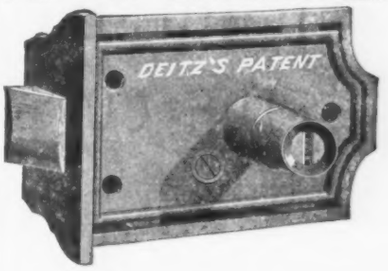

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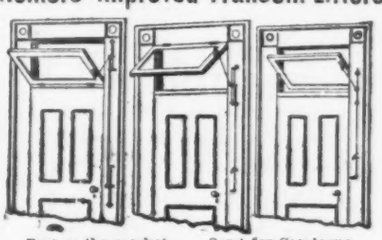

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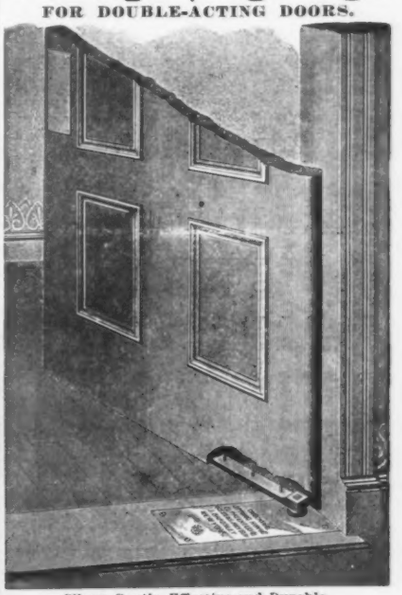

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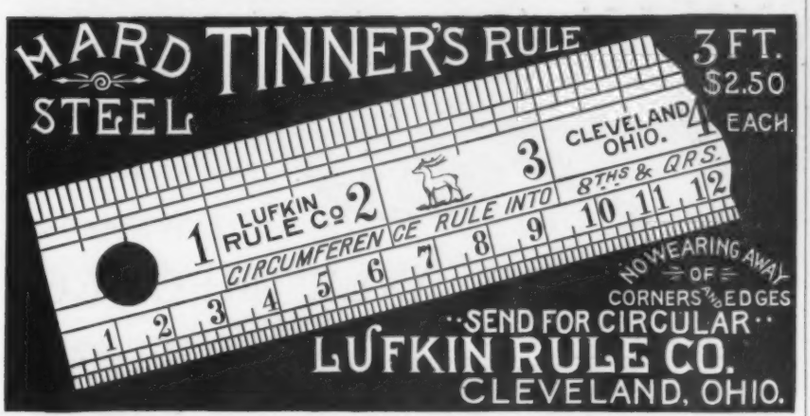

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For Water, Gas and Steam.
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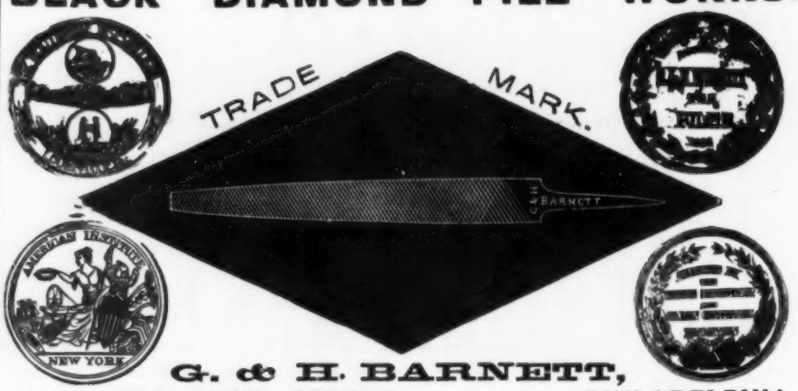

G. & H. BARNETT,
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Superiority acknowledged wherever used, sold or exhibited.

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The superiority of our Horse Rasps over all others is universally admitted by those who use them, and their high degree of excellence will be scrupulously maintained. Give them a trial, and use no others.

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All descriptions of Files made to order. Price List mailed on application. Established 1863.

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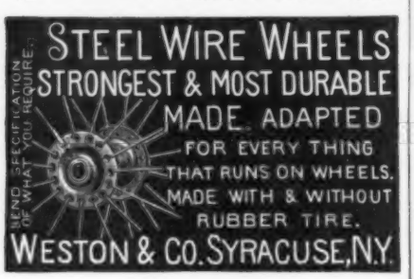

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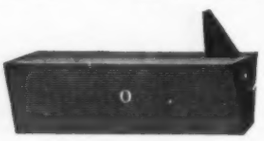

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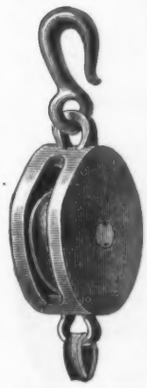

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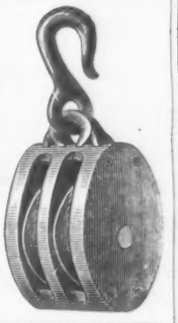

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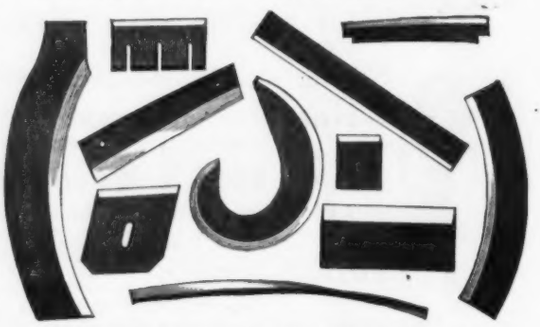

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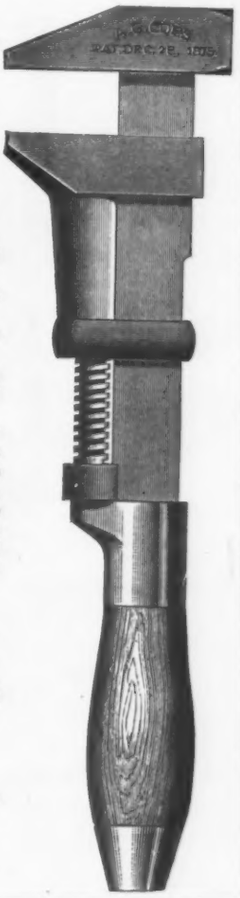

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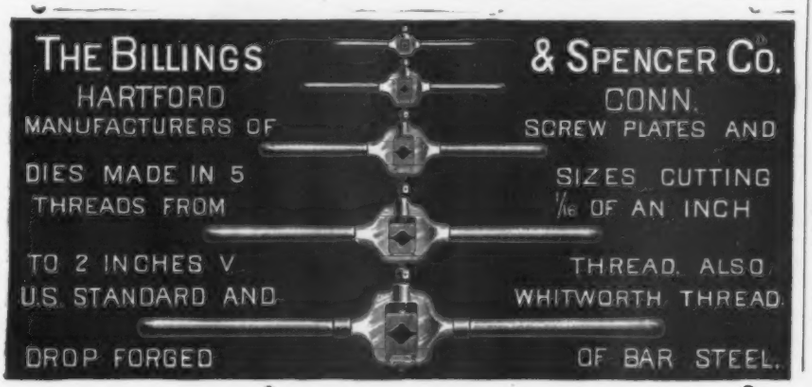

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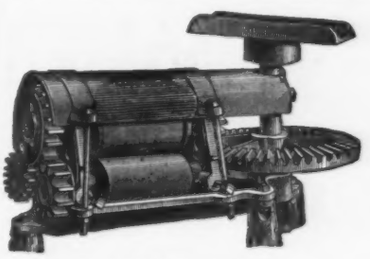

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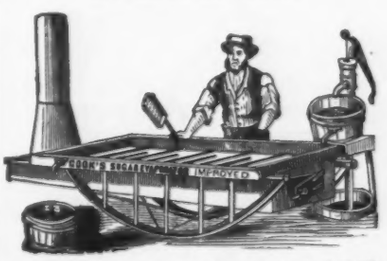

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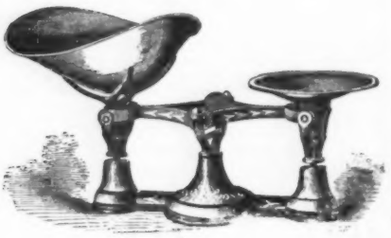

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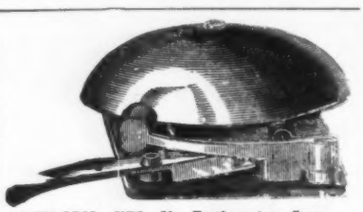

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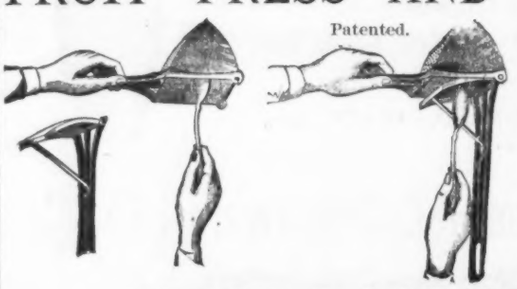

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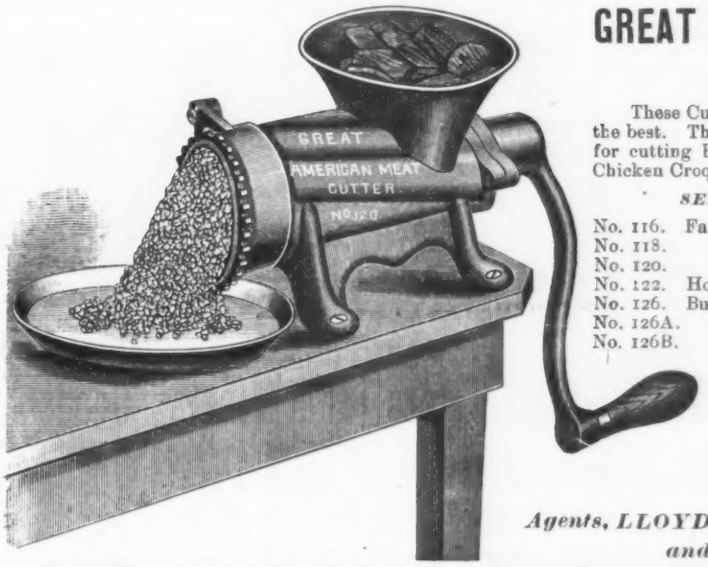

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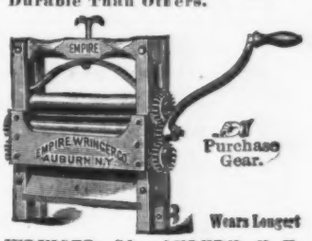

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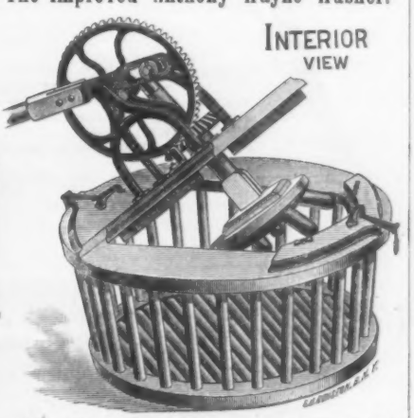

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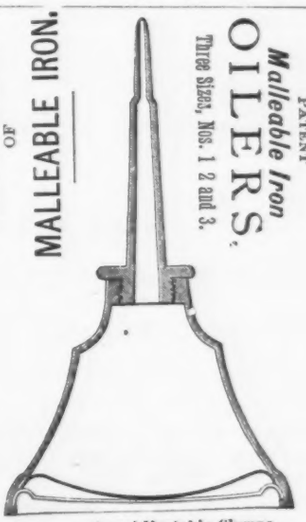

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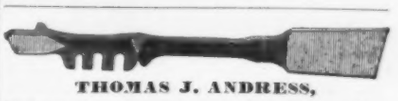

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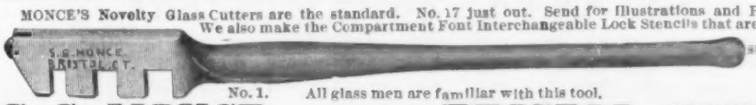

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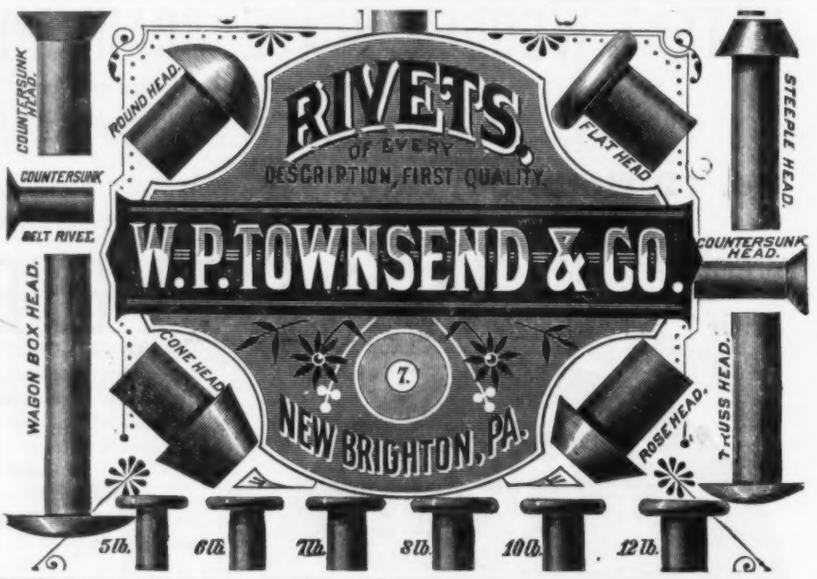

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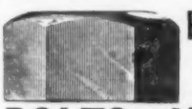

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Robinson, Wm. H., Philada, Pa.
M. V. Smith, Pittsburgh, Pa.
Stein & Schwarz, Philadelphia, Pa.
Swindell Construction Co. Pittsburgh, Pa.
Waite & Van Harlingen, Phila. Pa.

Engines, Gas.
Clerk Gas Engine Co., Phila., Pa.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam. *Makers of.*
Climax Mfg. Co., Corry, Pa.
Farquhar, A. B. & Son, York, Pa.
Harrisburg Car Mfg. Co., Harrisburg Pa.
Leffel Jas. & Co., Springfield, O.
Newell Universal Mill Co., 10 Barclay N. Y.
Payne B. W & Sons, 49 Dey, N. Y
Russell & Co, Massillon, Ohio
Norwalk Iron Works Co., S. Norwalk
Todd Wm. & Co., Youngstown, O.
Valley Iron Works, Williamsport, Pa
Wetherill Robt. & Co., Chester, Pa.

Engravers and Printers.
Conant, J. S. & Co., Boston, Mass.
Kyes & Woodbury, Worcester, Mass.

Evaporators.
Oyler, Geo. K., St. Louis, Mo.

Exhaust Pipe Condensing Head.
Aller, Amos, 109 Liberty, N. Y.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn, N. Y.

Faucets, Self-Measuring.
Enterprise Mfg. Co., Philada., Pa.

Faucets. *Makers of.*
John Sommer's Son, Newark, N. J.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn

Fences, Wrought Iron.
Champion Iron Fence Co., Kenton, O.

Files, *Importers of.*
Montgomery & Co., 105 Fulton, N. Y.
Moss, F. W. 80 John, N. Y.

Files and Rasps, *Manufacturers of.*
Barnett, G. & H., 41 & 43 Richmond, Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
Jetter Mfg. Co., Buffalo, N. Y.
McCaffrey & Bro.., Philadelphia.
Nicholson File Co., Providence, R. I.
Paul Chas. B., Williamsburg, N. Y.

Fire Brick, *Makers of.*
Birmingham Fire Brick Works, Birmingham, Ala.
Borgner & O'Brien, Philadelphia, Pa
Gardner James, Cumberland, Md.
Haws, A. J. & Sons, Johnstown, Pa.
Kreischer B. & Sons, foot E. Houston, N. Y.
Maurer H. & Son, 420 E. 23d, N. Y.
Newton & Co., Albany, N. Y.
Ostrander James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine M. D. & Bro., Woodbridge.

(See Alphabetical Index, Page 82.)

Fishing Tackle.
Field, J. B. & Co., Detroit, Mich

Flint Garnet Paper.
Upton Geo., Boston, Mass.

Flour Sifters.
Fred. J. Meyers Mfg. Co., Covington, Ky.

Foreign Iron Merchants.
Jno G. Rollins, London England.

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Brown & Patterson, Brooklyn, N. Y.
Bullock, T. H., Cleveland, O.
Buffalo Forge Co. Buffalo, N. Y.
Champion Blower and Forge Co. Lancaster, Pa.
Sturtevant B. F., Boston Mass.

Forgings, Iron and Steel.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa
Miller Forge Co., Pittsburgh, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg Co., Cincinnati, O.

Foundry Riddles.
Estey W. S., 71 Fulton, N. Y.

Foundry Supplies.
Detroit Foundry Equipment Co., Detroit Mich.
S. Obermayer, Foundry Supply Mfg Co., Cincinnati, O.
Paxson J. W. & Co., Philadelphia.

Friction Clutches.
Hill Clutch Works, Cleveland, O.
Moore & White Co., Philadelphia, Pa.

Friction Pulleys.
Sandy Hill Iron and Brass Works, Sandy Hill, N. Y.

Furnace Hoists.
Stokes & Parrish Machine Co., Phila.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila, Pa.

Gears.
Grant, Geo. B., Boston, Mass.

Gear Cutters.
Grant, Geo. B., Boston, Mass.
Pratt & Whitney Co., New London, Conn

Glass Cutters.
Andrews, Thos. J., Philadelphia, Pa.
Monce, S. G., Bristol Conn.

Glue.
Le Page Liquid Glue and Cement Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.
Upton, Geo., Boston, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Gunpowder. *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hammers, Steam.
Bradley & Co., Syracuse, N. Y.

Hand Force Pumps.
Union Mfg. Co., 103 Chambers, N. Y.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field Alfred & Co., N. Y.
Jacobus, W. H. & Co., N. Y.

Hardware Manufacture
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Vaughan & Bushnell Mfg. Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H., 115 Chambers, N. Y.

Hardware Shelf Boxes.
Green S. H., 28 Park Place, N. Y
Jones, Jesse & Co., Philadelphia, Pa.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit Brace Co., Buffalo, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Greene, Tweed & Co., N. Y.
Paine, Diehl & Co., Philadelphia, Pa.
Rex A. C. & Co., Philadelphia, Pa
Saxton E. R., Buffalo, N. Y.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Carriers
Myers F. E. & Bro., Ashland, O.

Hay Fork Pulleys
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hinges.
Union Mfg. Co., 103 Chambers, N. Y.

Hog Ringers.
Chambers, Bering & Quinlan Co., Decatur.

Hoisting Machines.
Box Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington E., Son & Co., Phila.
McCoy & Sanders, 26 Warren, N. Y.
Morse Williams & Co., Phila.
Sellers Wm. & Co., Phila. and N. Y
Teal Hoist Co., Philadelphia.

Hollow Ware.
N. Y. Stamping Co., Brooklyn, N. Y

Horse Nails. *Makers of.*
National Horse Nail Co. Vergennes.

Horse Shoes. *Makers of*
Phoenix Horse Shoe Co., Poughkeepsie, N. Y
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose Clamps.
Tuerk Water Meter Co. Syracuse, N. Y.

Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa.

Hydrants, &c.
McLean John, N. Y.

Hydraulic Jacks.
Dudgeon Richard, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.

Indurated Fibre Ware
Union Indurated Fibre Co., N. Y.

Injectors.
Aller, Amos, 109 Liberty, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron. *Manufacturers' Agents.*
Cox Justice, Jr., & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Hoffman J. W. & Co., Philadelphia.
Lewis Henry & Co., Philadelphia.

Iron. *Manufacturers of.*
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Long & Co., Pittsburgh, Pa.
Mahoning Valley Iron Co., Youngstown, O.
Montour Iron & Steel Co., Danville.
Moorhead-McCleane Co., Pittsburgh, Pa
Passaic Rolling Mill Co., Paterson
Phoenix Iron Co., 410 Walnut, Phila.
Pottstown Iron Co., Pottstown, Pa.
Troy Steel and Iron Co., Troy, N. Y.
Whitney A. R. & Co., 58 Hudson, N. Y
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philp C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Ettwig Edward J., Philadelphia, Pa.
Walbaum W. H. & Co., Philadelphia, Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia
Hogan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia
Mohr J. J., 430 Walnut, Phila
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila. Pa.
Hart, Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co., Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 100 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co., 94 to 97 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig. *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet. *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O.

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Millers Falls Co., 91 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co. Newburg, N. Y
Enterprise Mfg. Co., Philadelphia, Pa.
East, Foos & Co., Springfield, O

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. F., Athol, Mass.

Lightning Rods.
Munson Lightning Conductor Co., Indianapolis, Ind.

Locks and Knobs. *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co., Bridgeport
Quackenbush, Abram, New York
Yale & Towne Mfg. Co., Stamford

Machinery.
Adt John & Son, New Haven, Conn.
Barnes W. F. & John Rockford, Ill
Birmingham Iron Foundry, Birmingham, Conn
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin 12 Broadway, N. Y.
Bullard E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank D. B. Providence, R. I.
Deering Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray's Ferry F'd'y & Boiler Co. Phila. Pa.
Gray, R. J. & Co., 131st & 4th Ave., N. Y
Hendey Machine Co., Torrington, Ct.
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge, Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J
New York Mach'y Depot, N. Y.
Nicholson & Waterman, Providence, R. I.
Pedrick & Ayer, Philadelphia, Pa.
Pryibil P., 467 W. 40th, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers Wm. & Co., Phila.
Snell, Henry I., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ltd., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. F'd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co. Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. & Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y. Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Meat Choppers.
Enterprise Mfg. Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N. Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard, P. F., Scranton, Pa.
Leonard, P. F., Scranton, Pa.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Thomas, Dago J., 1 Broadway, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co., Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co., 139 Green'ch. N. Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Wash'ton N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y.

Norway Shapes. *Rollers of.*
Naylor & Co., 99, John, N. Y.
Rowland William & Harvey, Frankford Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester.
Wilson J. Fred, Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co. Branford, Conn

Oil Stones.
A. F. Pike Mfg. Co., Pike Station, N. H.
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardner, Mass.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-Spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Fraim. E. T., Lancaster, Pa.

Pails.
Brower, John, New York

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Stocking E. B., Washington, D. C.

Perforated Metal.
Throop Perforating Co., Buffalo, N. Y.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Pig Iron.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe. Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of.*
Donaldson Iron Co, Emaus, Pa.
Fox John, 160 Broadway, N. Y.
Morris, Tasker & Co., 224 South Third street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co. St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y
Tower & Lyon, 95 Chambers St. N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N. Y

Post Hole Diggers.
Lagonda Mfg. Co., Springfield, O.

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Power Hammers.
Belden R. A. & Co., Danbury, Conn.
Bradley & Co., Syracuse, N. Y.
Dieneit & Eisenhardt, Philadelphia
Duncan, W. F. & Co., Bellafonte, Pa.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Power Transmission Machinery.
Hill Clutch Works, Cleveland, O.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa

Presses, Dies, &c.
Crosby G. A. & Co., Chicago., Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown, Conn.

Presses, Power. *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Gould's Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Keystone Engine and Machine Wks Phila., Pa.
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Easthampton, Mass.

(See Alphabetical Index, Page 82.

Pumps, Force.
Myers F. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y.

Pumps. *Makers of.*
Clark Bros., Belmont, N. Y.
Columbiana Pump & Machine Co.
Douglas W. & B., Middletown, Conn.
Goulds Mfg. Co., 60 Barclay, N. Y.
Silver & Deming Mfg.Co., Salem, O.
Union Mfg. Co., 103 Chambers, N. Y.

Punching and Shearing Presses.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown, Pa.
Joliet Steel Co., 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y.
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Bowles Mfg. Co. Bridgeport, Ct.

Razors.
Dame, Stoddard & Kendall, Boston, Mass.
J. R. Torrey Razor Co., Worcester Mass.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia.

Refrigerator Trimmings.
Brainard & Co., 97 Chambers St., N. Y.

Registering Machines.
Ives, Geo. E., New Haven, Conn

Rivets.
Disosway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co. New Brighton, Pa.

Rock Drills.
Clayton Air Compressor Works, Brooklyn, N. Y., and Dey, N. Y.

Rolling Mill Machinery.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co., Pittsburgh, Pa
Seaman, Sleeth & Black, Pittsburgh.

Roofing.
Garry Iron Roofing Co., Cleveland, O.

Rules, *Manufacturers of.*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Balances.
Caldwell, W. H., Rochester, N. Y.

Sash Cords and Chains.
Morton Thos., 65 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Whitney, D. J., 47 Warren, N. Y.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Claflin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers st., New York.
Ives H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co, Troy, N. Y.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury, Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Truax, Chauncey S., 64 College Place, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons, Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Riehlé Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Decatur Coffin Co, Decatur, Ill.
Ellrich Hdw. Mfg. Co., Plantsville, Conn.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S., 205 Quarry, Philadelphia
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls N. Y
King, O'Connor & Co., Baltimore, Md.

Scythe Stones and Whetstones
A. F. Pike Mfg. Co., Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 27 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Schollhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.
Rowlands Sons, T., Philadelphia, Pa.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown, Conn.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen, 105 Walker, N. Y.

Sporting Goods.
Field, J. B. & Co., Detroit, Mich.

Spelter.
Manning & Squier 111 Liberty, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.

Spring Hinges.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Straps.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon Richard, 24 Columbia, N. Y.
Duncan W. P. & Co., Bellefonte Pa.

Steam Heating.
Broomell & Sanks, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colvile Steam Pump Co., St. Louis, Mo.
McGowan John H. &Co., Cincinnati.
Norwalk Iron Wks.Co., So. Norwalk.

Steam Traps.
Aller Amos, 109 Liberty, N. Y.

Steel Figures and Alphabets.
Stutzman J. M., 181 William, N. Y.

Steel Importers.
Abbott Jere & Co., N.Y. & Boston.
Hobson Francis & Son, 97 John, N. Y.
Jessop Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West, N. Y
Whitney A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones H. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Frankford Steel Co., Philadelphia
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John, N. Y.
Jones, H. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller, Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss F. W., 83 John, N. Y.
Naylor & Co., 99 John, N. Y.
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Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N. Y.
Wardlow S. & C., Sheffield, Eng
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beavor-Webb, J., 145 Broadway.
Hicks & Dickey, Philadelphia, Pa.

Steel Nails
Bellaire Nail Works, Bellaire, O io.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs. *Manufacturers.*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N. Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng. 91 John, N. Y.
Leng John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Straps
J. R. Torrey & Co. Worcester, Mass.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Truant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W., Springfield, Mass.
Ellrich Hdw. Mf. Co., Plantsville, Ct.
Hoague, J. H. & Co., Chicopee, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Campaign.
Sheparo, Sidney & Co., Buffalo, N. Y.

Transom Lifters.
Reiher F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Riehle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co. 19 Mur'y, N. Y.

Tubes, Steel.
Leng John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Leng John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 23 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers
Lanman, E. B., Columbus, O.
Nason Mfg Co., Philadelphia, Pa

Washing Machines.
Wayne, Anthony, Mfg.Co., Fort Wayne Ind.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York.

Water Motors.
Tuerk Water Meter Co., Syracuse, N. Y

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

Whiffletree Hooks,
Head's Iron Foundry, Utica, N. Y.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.

Wheels.
I. A. Weston & Co., Syracuse, N. Y

Window Cleaners.
Bosley, D. W. & Co., Chicago.

Window Cord, *Makers of.*
Tolman, J. P. & Co., Boston, Mass.

Window Screens.
Darby, Edw. & Sons, Philada., Pa.
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren St., N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., L'd, Pittsburgh, Pa
Howard & Morse, 45 Fulton, N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co., Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass.
Darby Edward & Sons, Philadelphia.
Estey W. S., 71 Fulton, N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse, 45 Fulton, N. Y.

Wire Goods, *Manufacturers of*
Brooks M. S. & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville
Howard & Morse, 45 Fulton, N. Y.;
Knapp & Hague, New York.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
Adt John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Sweetser, W. A., Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Birmingham Wire Nail Co., Birmingham, Ct.
Dunbar, Hobart & Co., 39 Warren, N. Y
Field A. & Sons, Taunton, Mass.
Hartman Steel Co. Ltd., Pittsburgh Pa.
Phillips E. & Sons, South Hanover.
Phillips, Townsend & Co., Phil., Pa
Pittsburgh Wire Nail Co., Pittsburgh Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
Wire Goods Co., Worcester.
Trufant W. E., Whitman, Mass.
Whitney A. R. & Co., New York City.

Wire Rods, Steel.
Whitney A. R. & Co., N. Y.

Wire Rope, Iron and Steel. *Makers.*
Broderick & Bascom, St. Louis, Mo.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St Louis, Mo.
Upson, Walton & Co., Cleveland, O.
Washburn & Moen Mfg. Co., Worcester, Mass.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Fall N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co Springfield, Mass.
Billings, Spencer & Co., Hartford Conn.
Coes Wrench Co, Worcester, Mass.
Utility Wrench Co, N. Y.
Williams, J. H., Brooklyn, N. Y.

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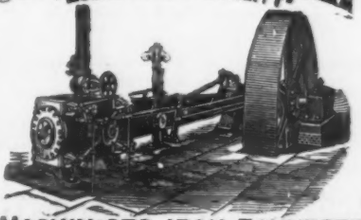

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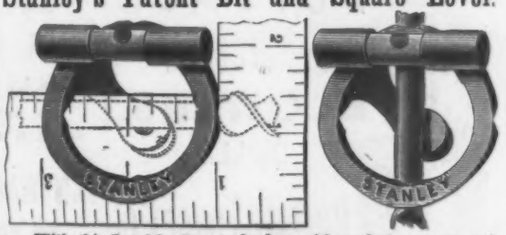

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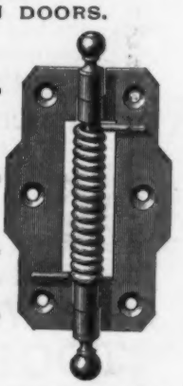

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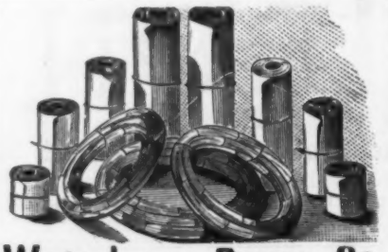

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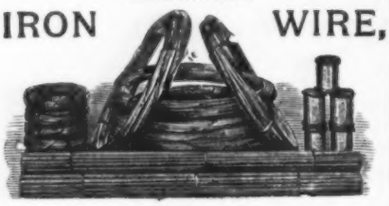

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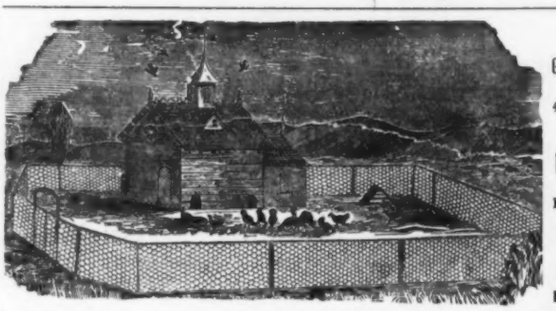

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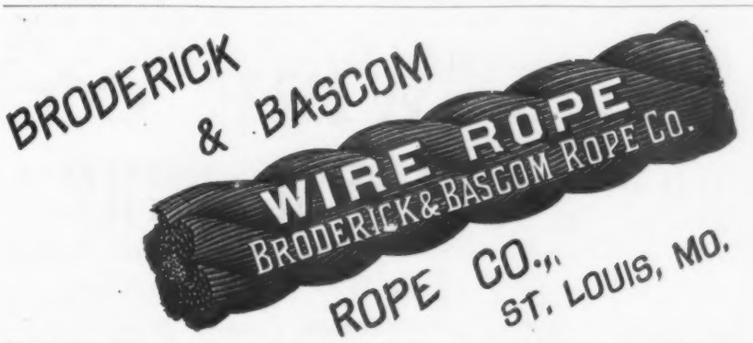

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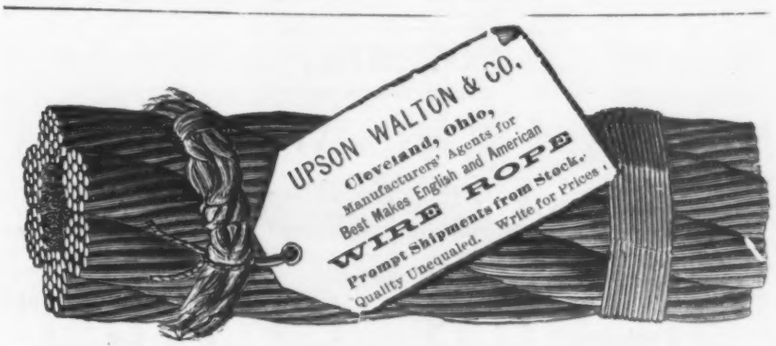

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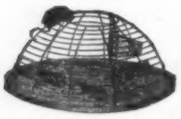

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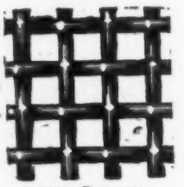

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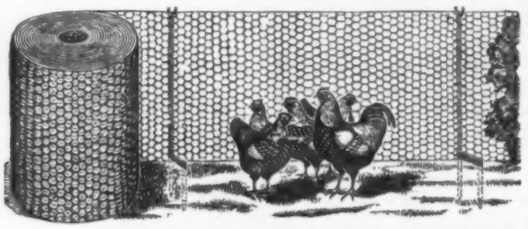

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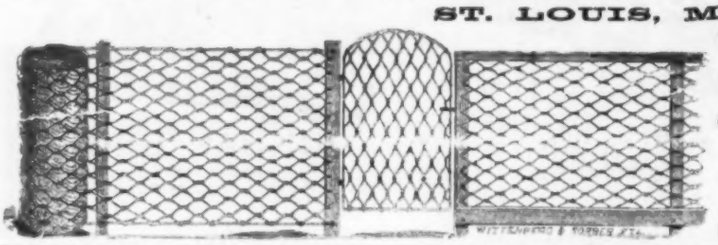

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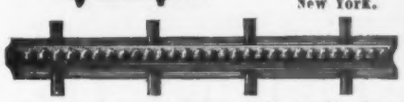

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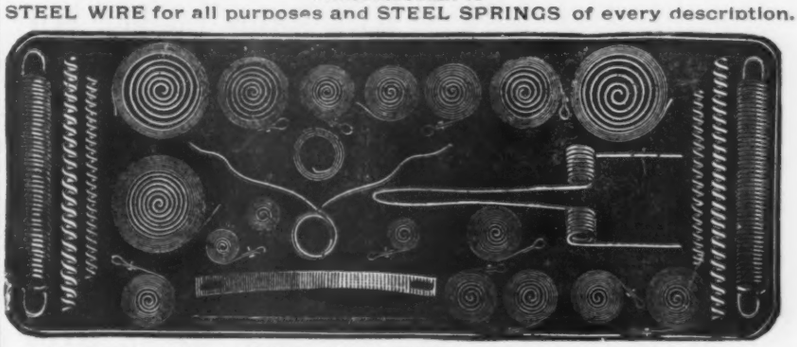

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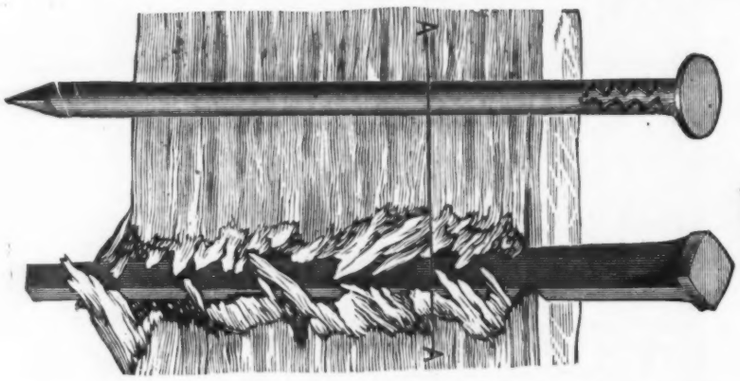

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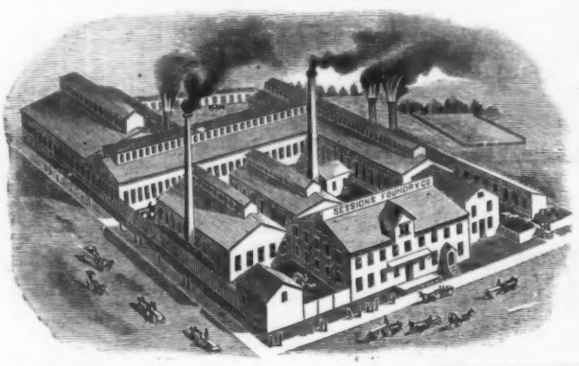

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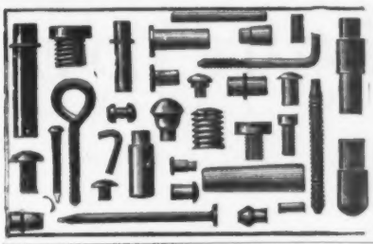

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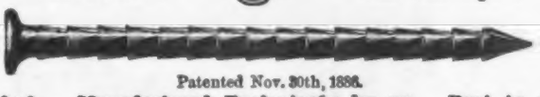

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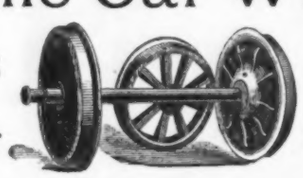

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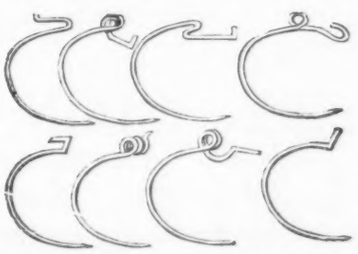

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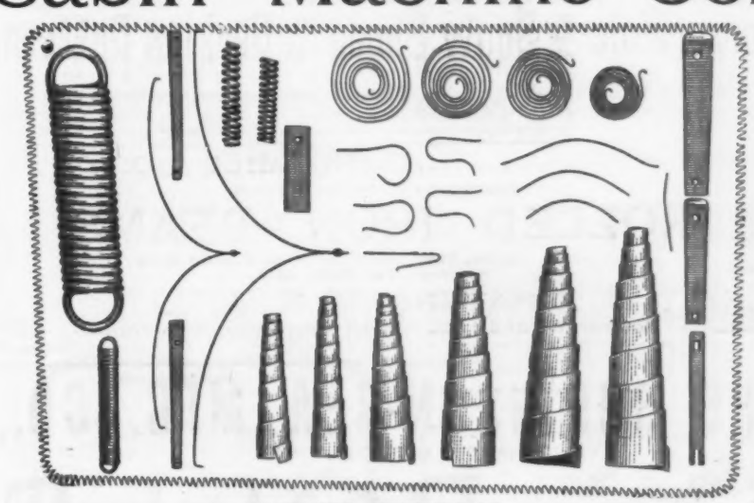

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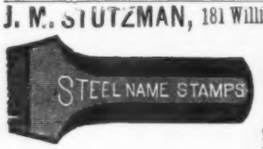

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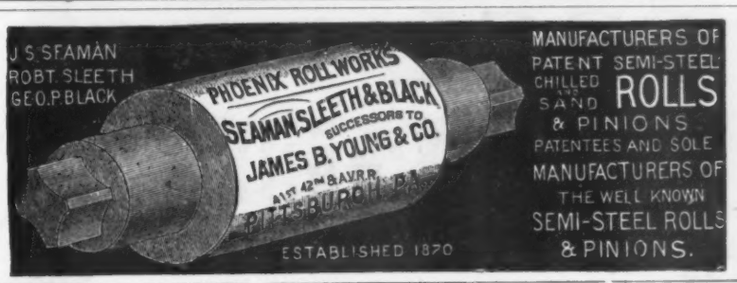

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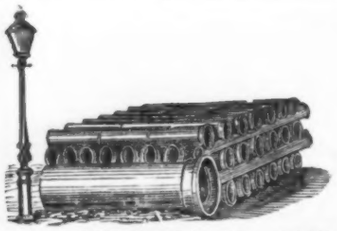

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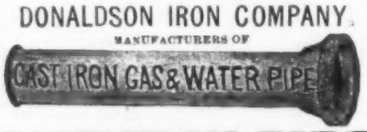

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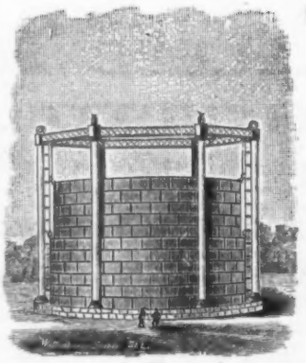

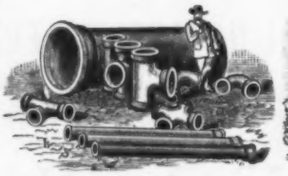

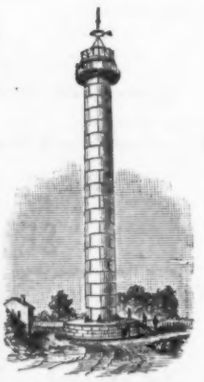

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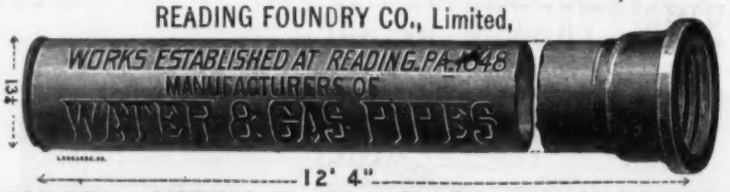

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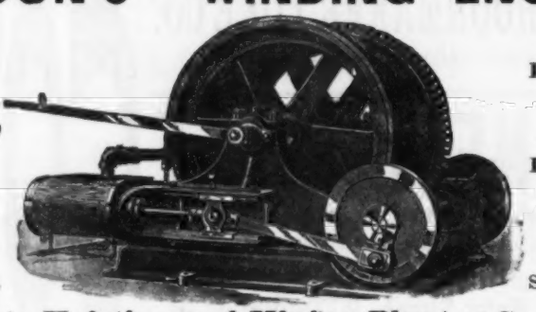

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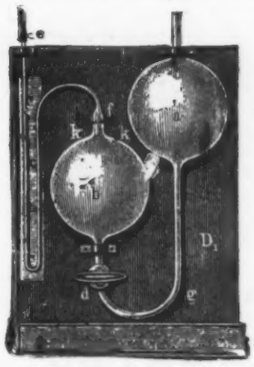

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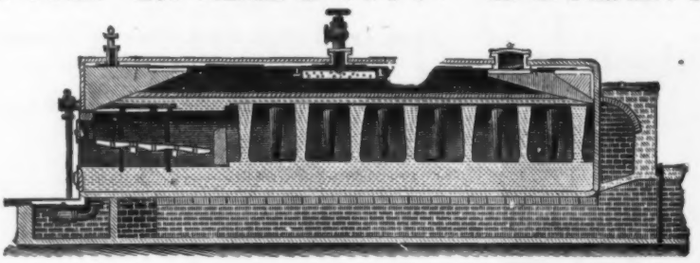

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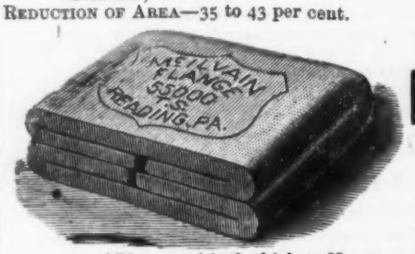

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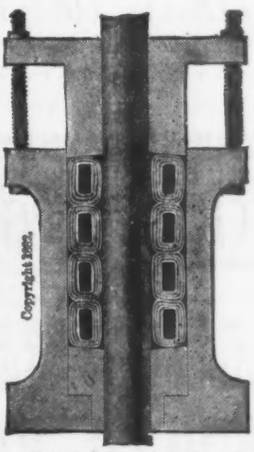

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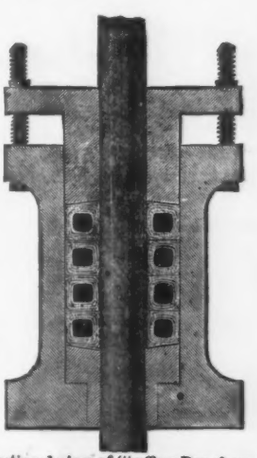

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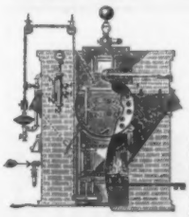

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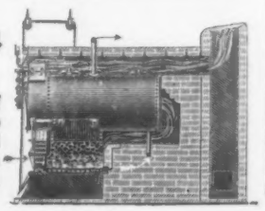

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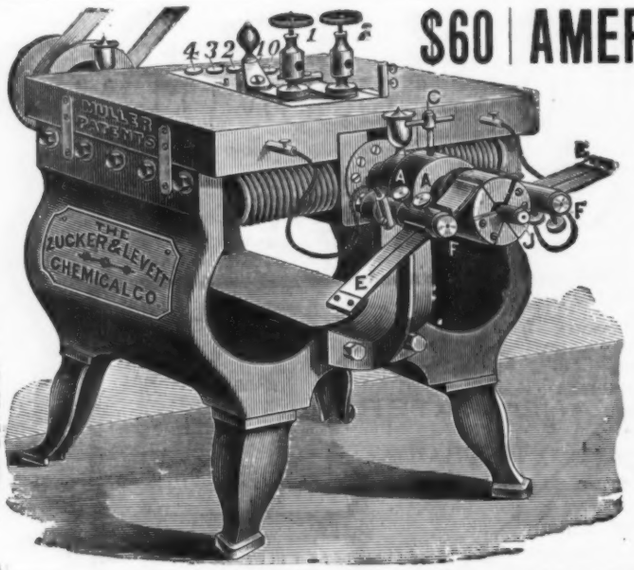

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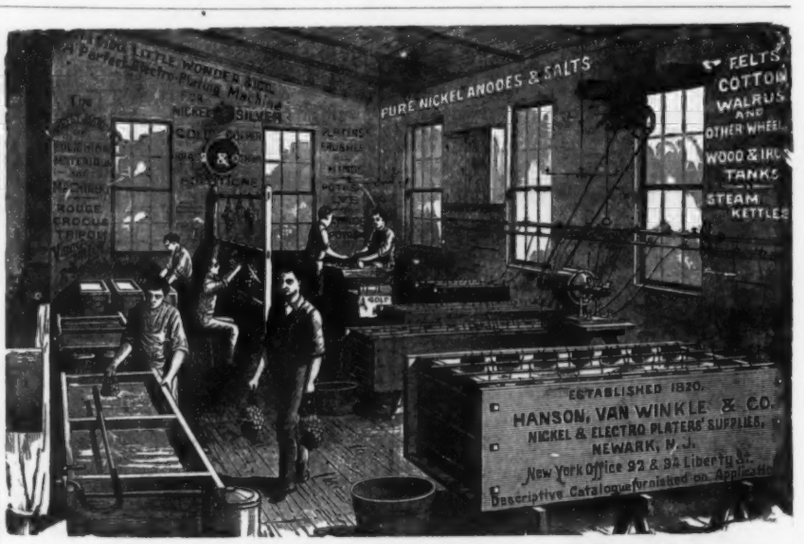

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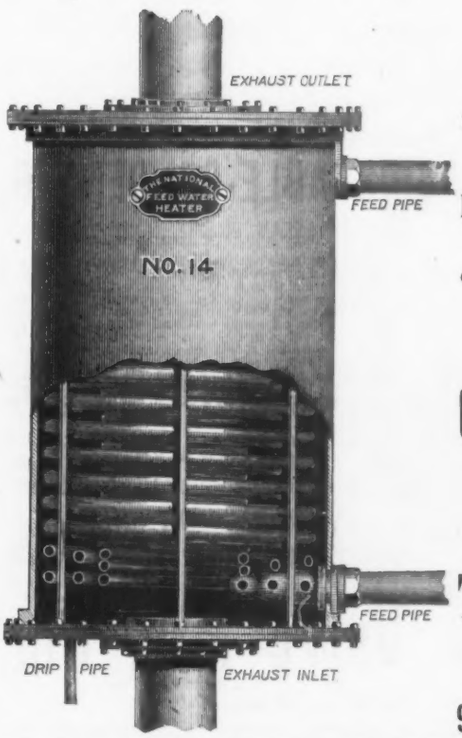

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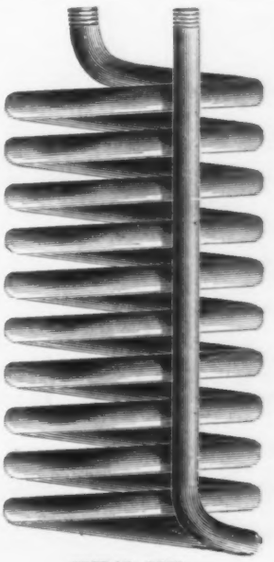

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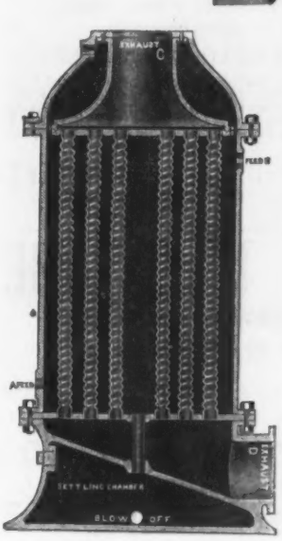

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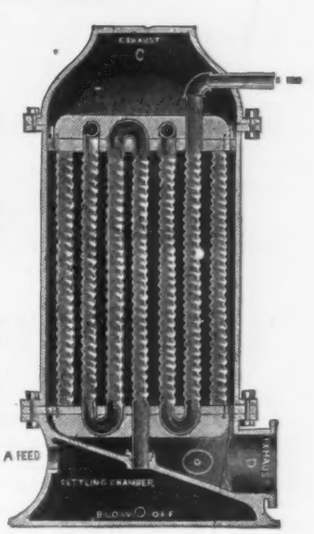

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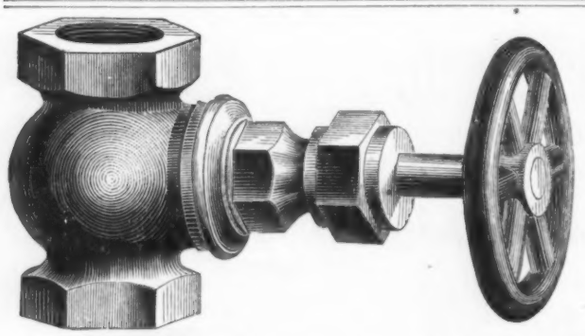

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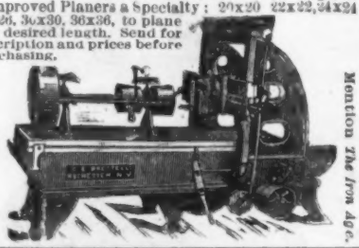

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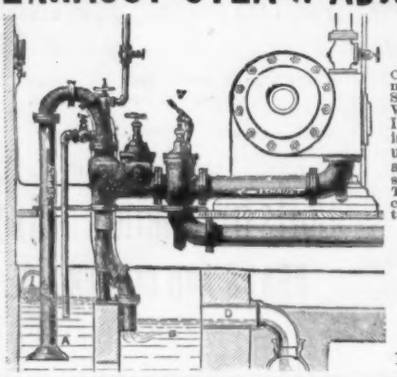

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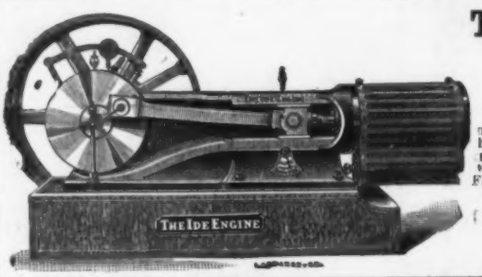

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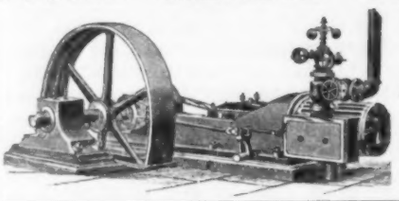

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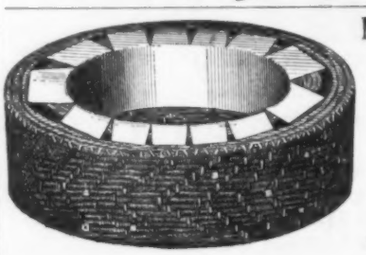

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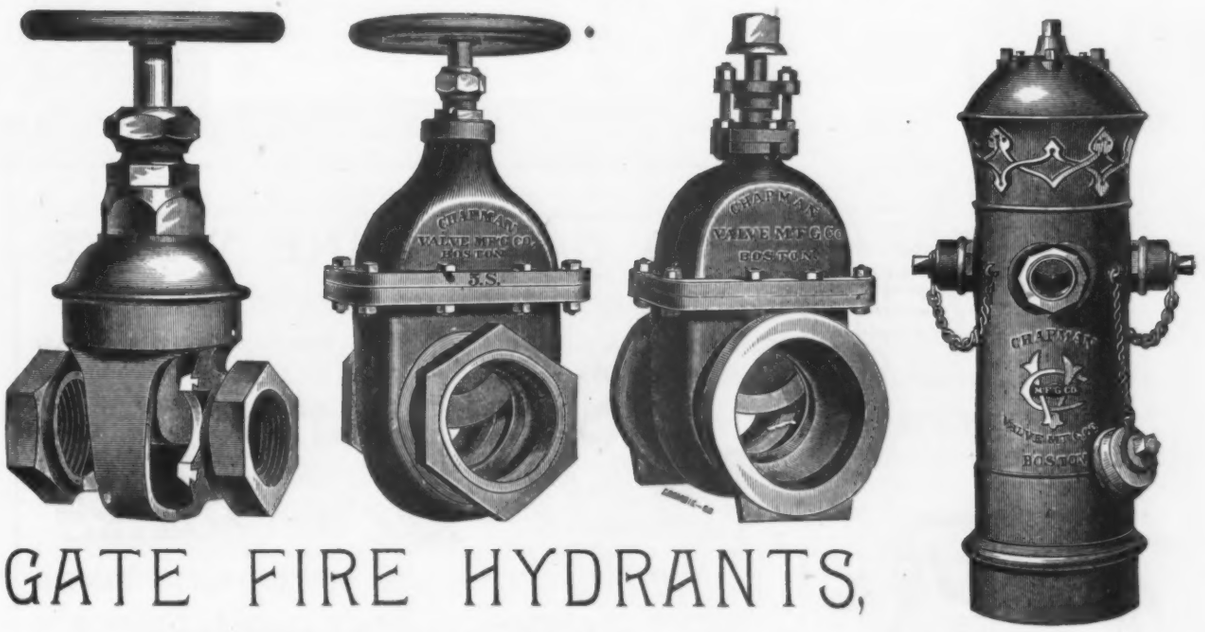

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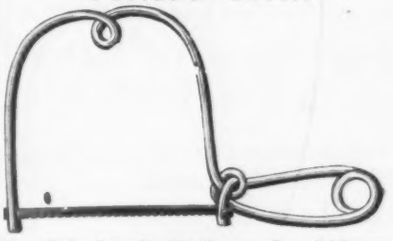

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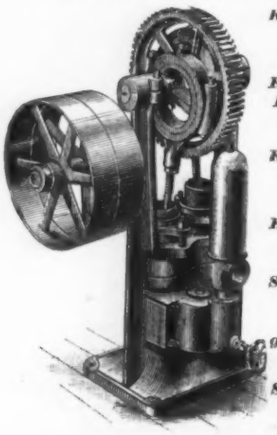

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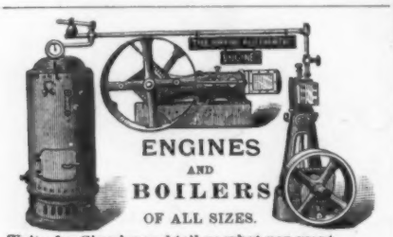

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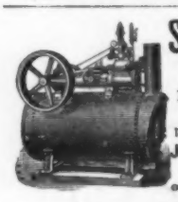

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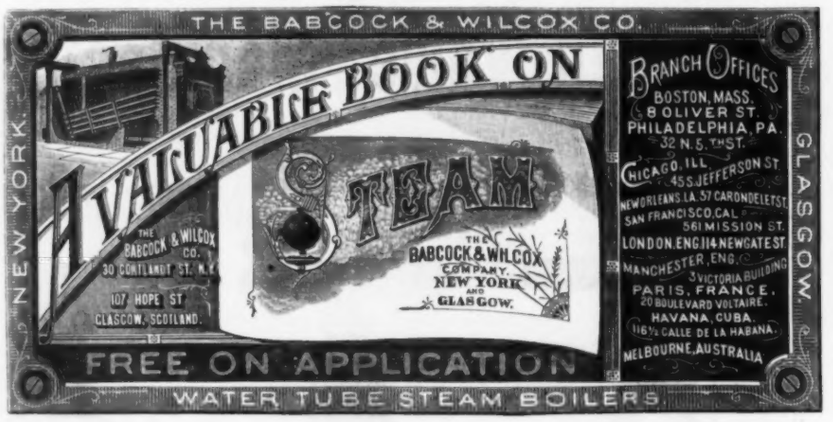

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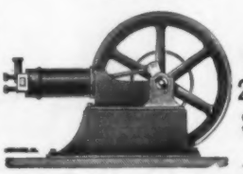

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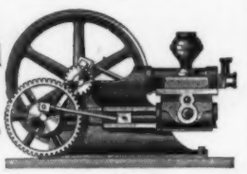

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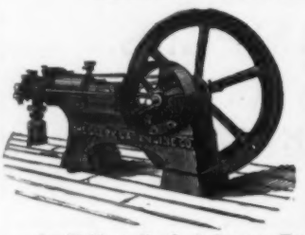

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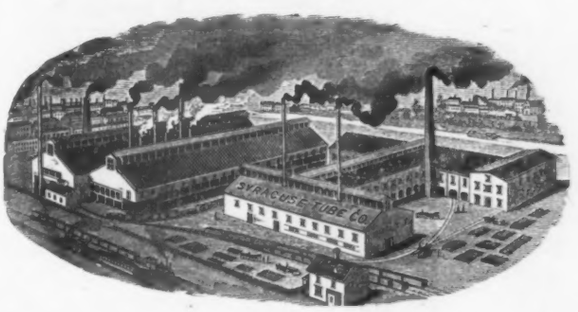

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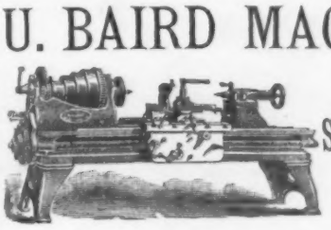

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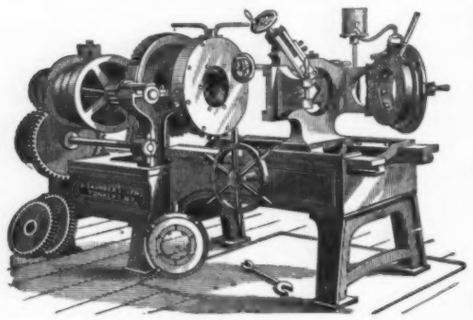

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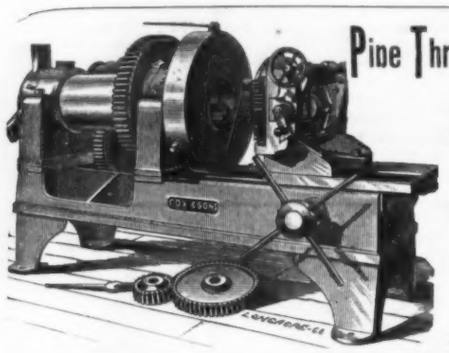

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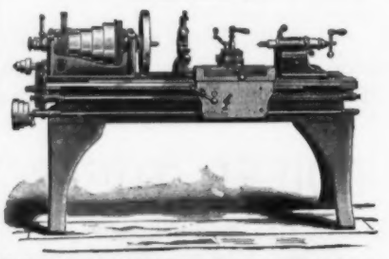

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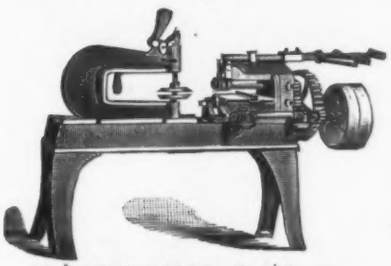

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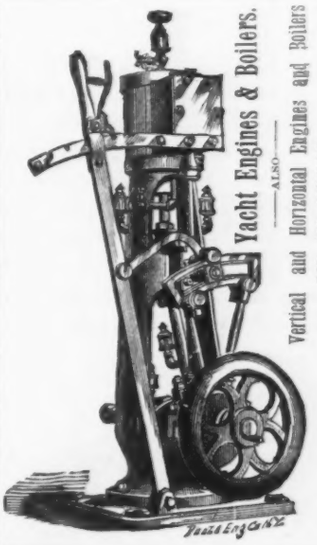

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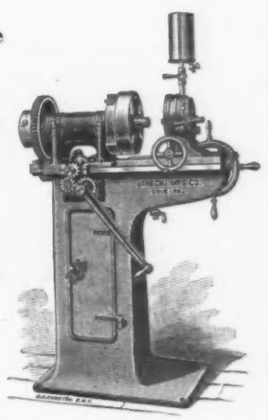

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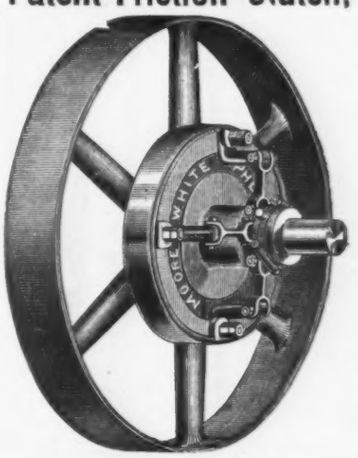

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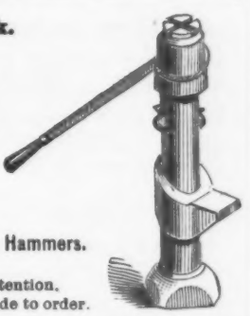

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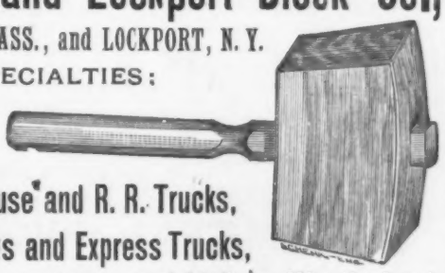

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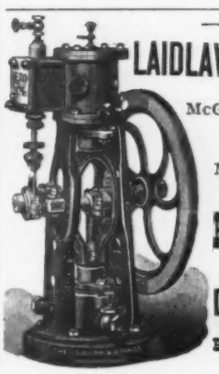

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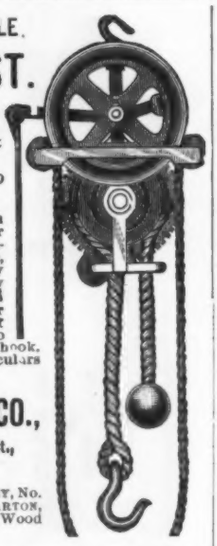

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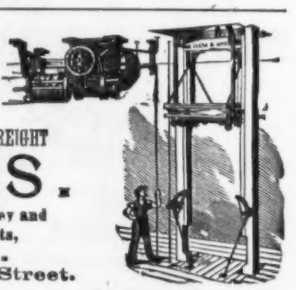

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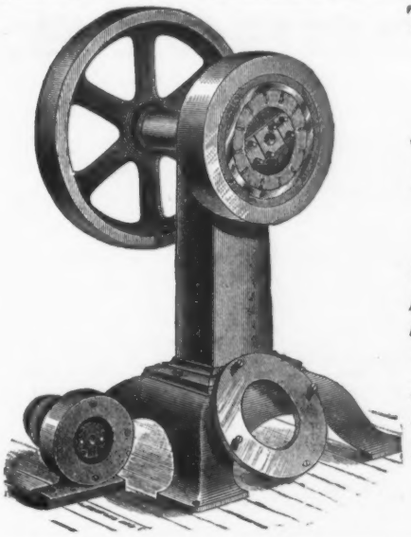

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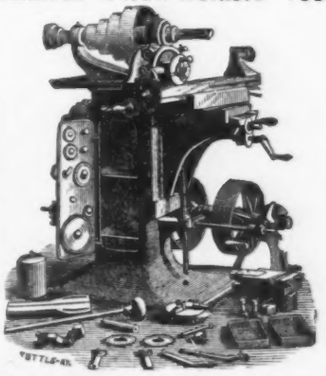

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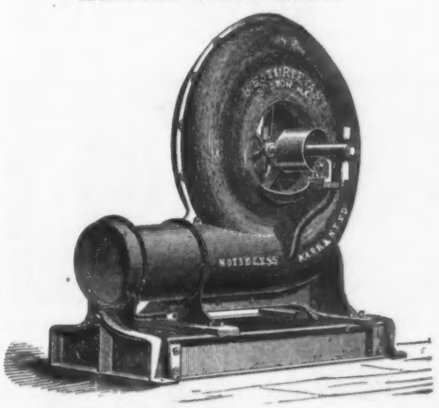

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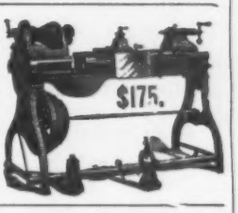

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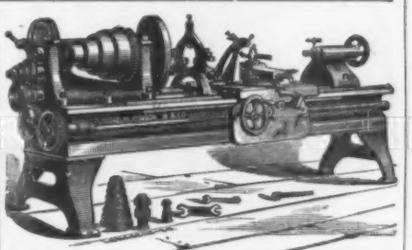

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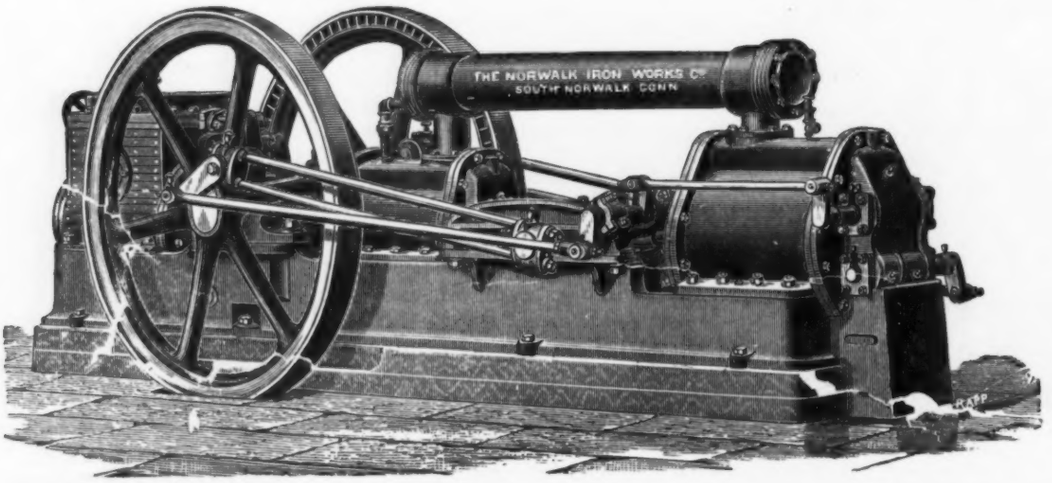

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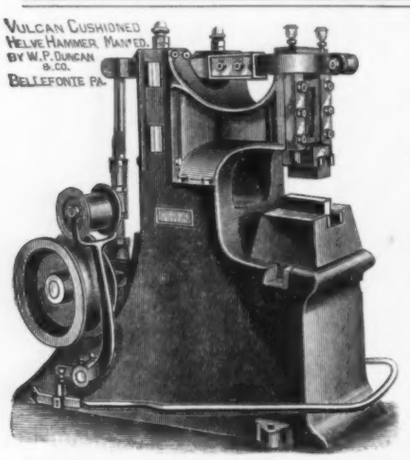

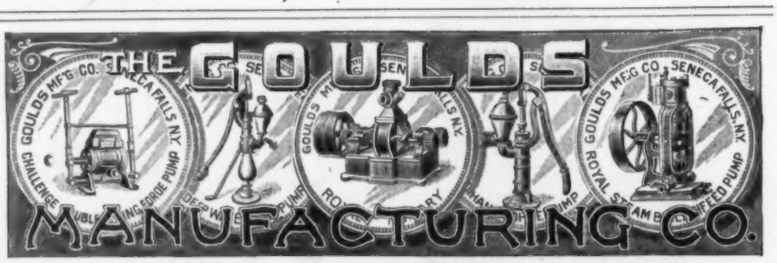

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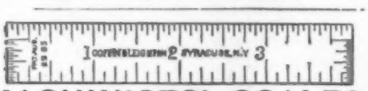

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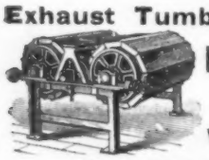

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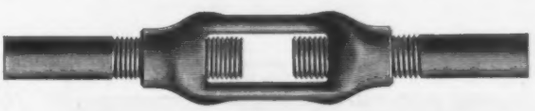
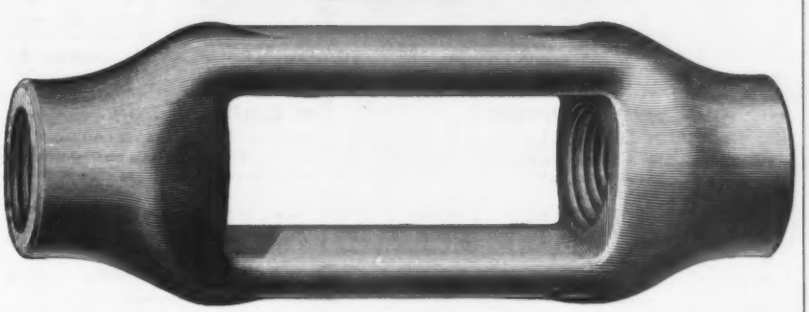
BEST.  CHEAPEST



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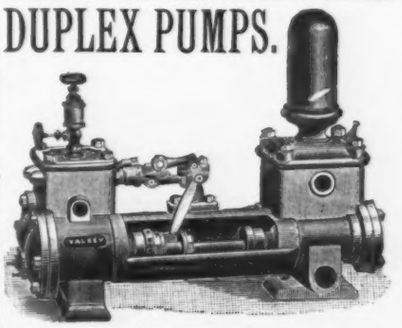

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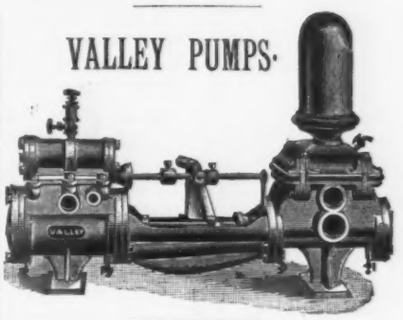

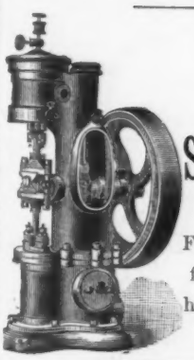

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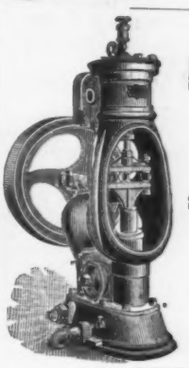

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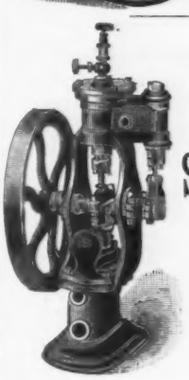

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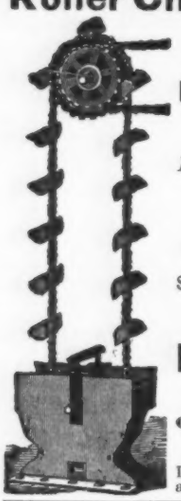

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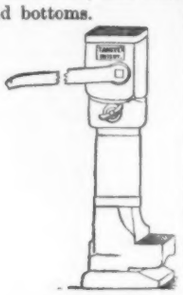

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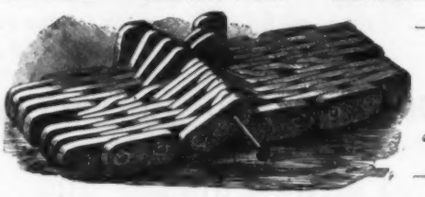

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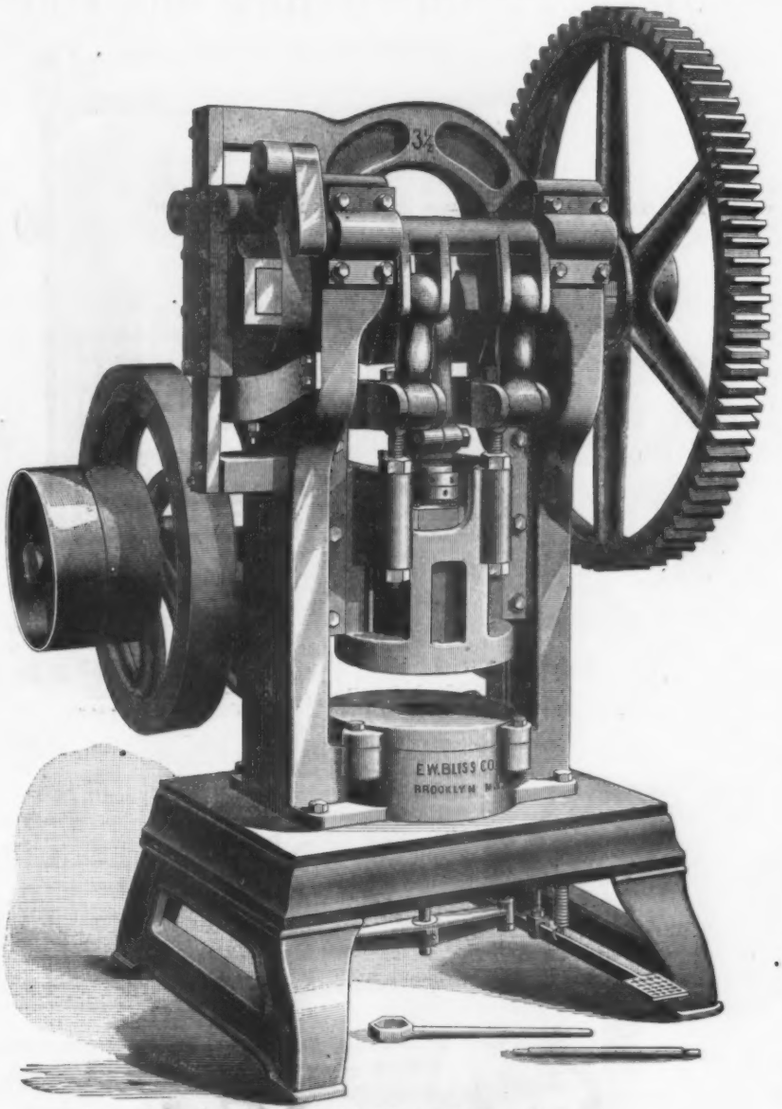

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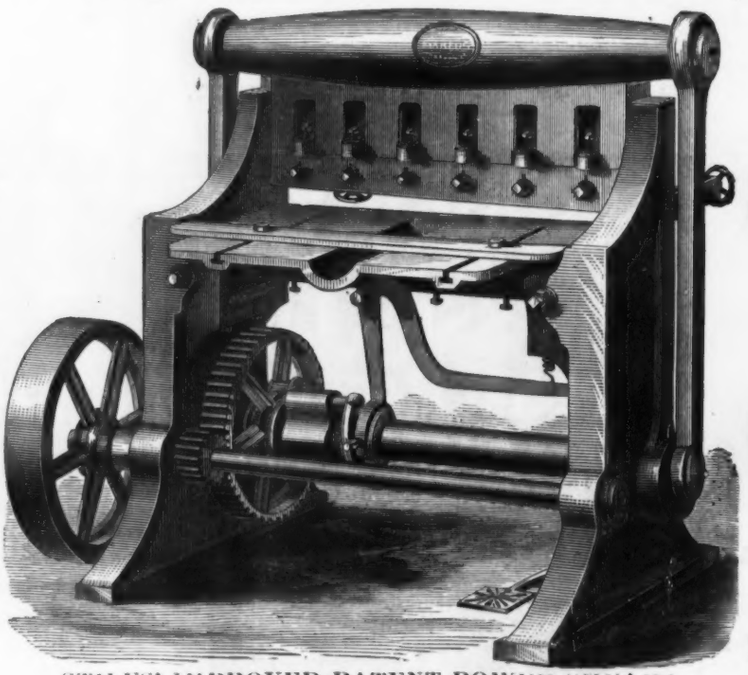

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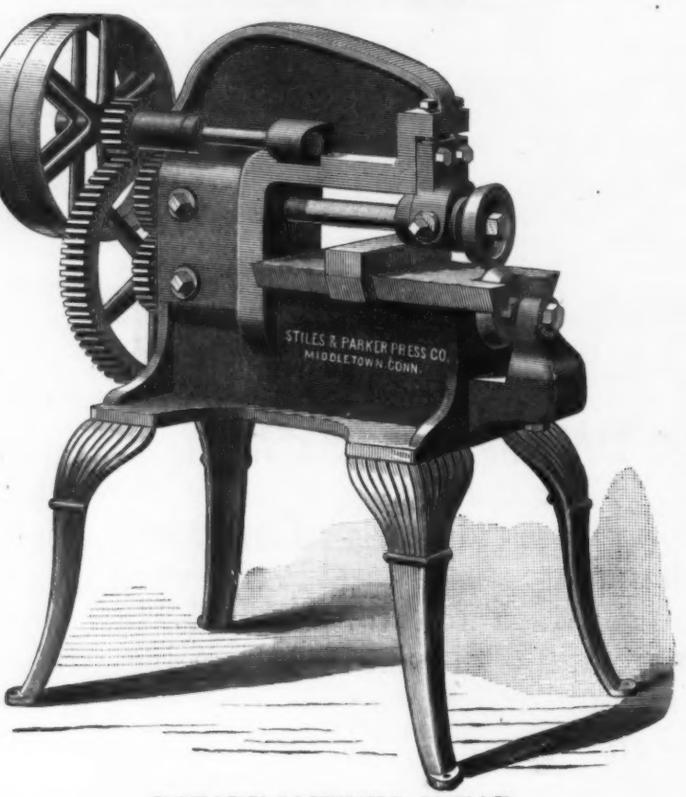

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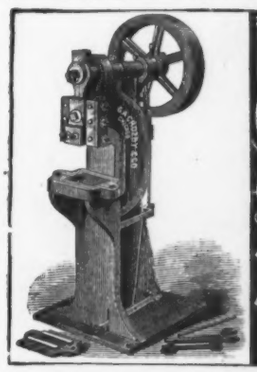

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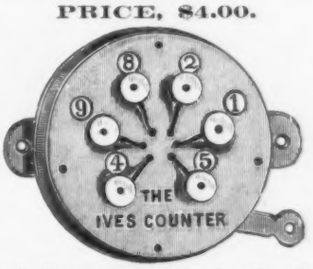

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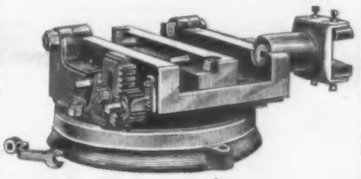

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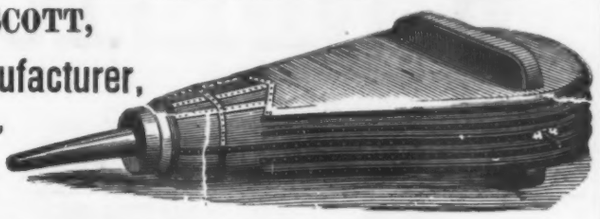

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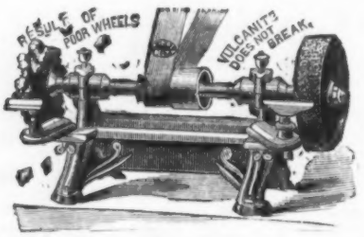

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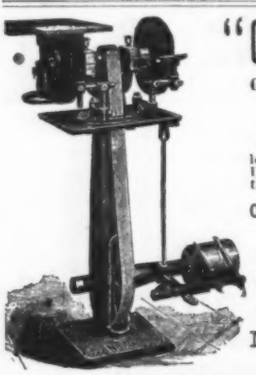

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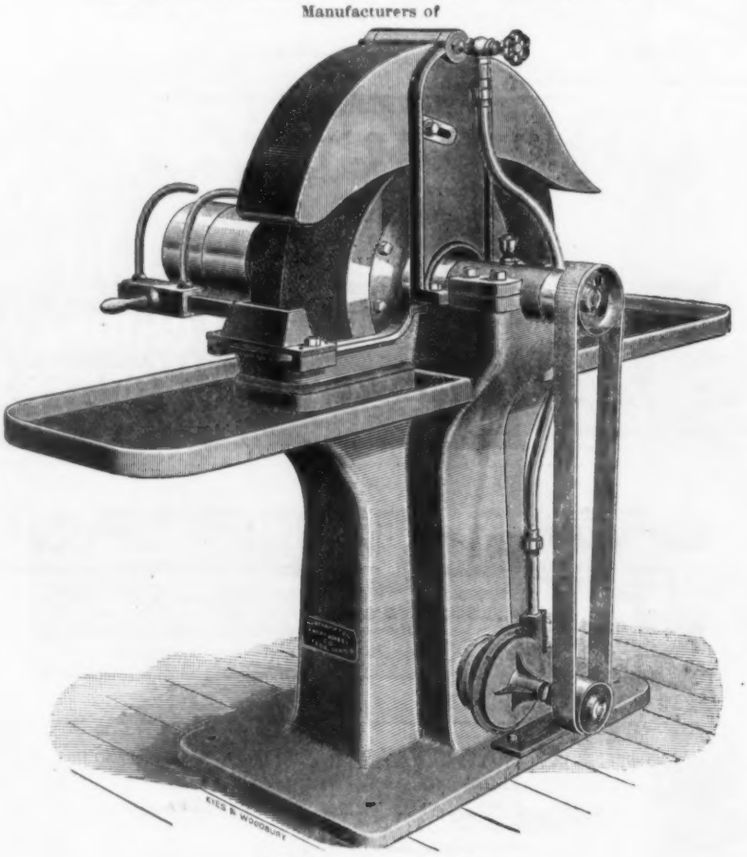

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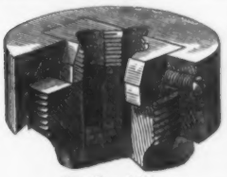

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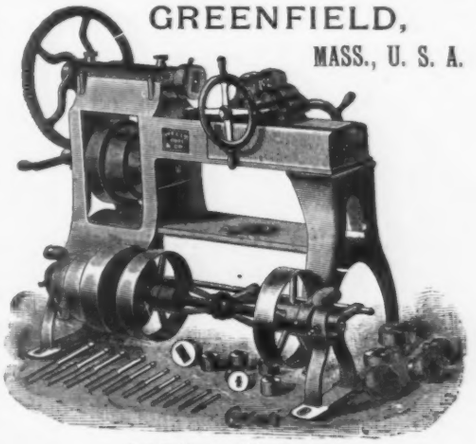

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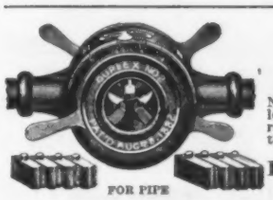

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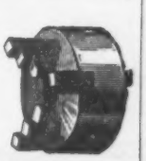

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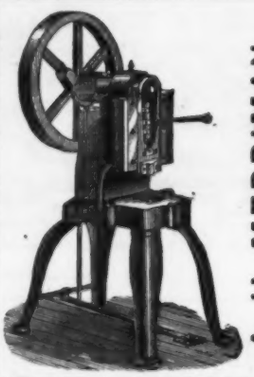

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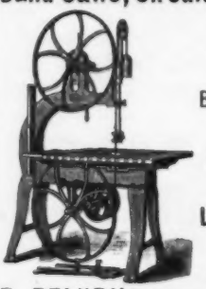

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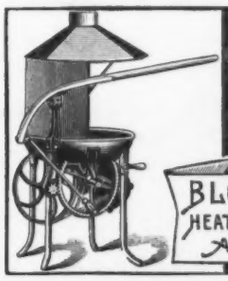

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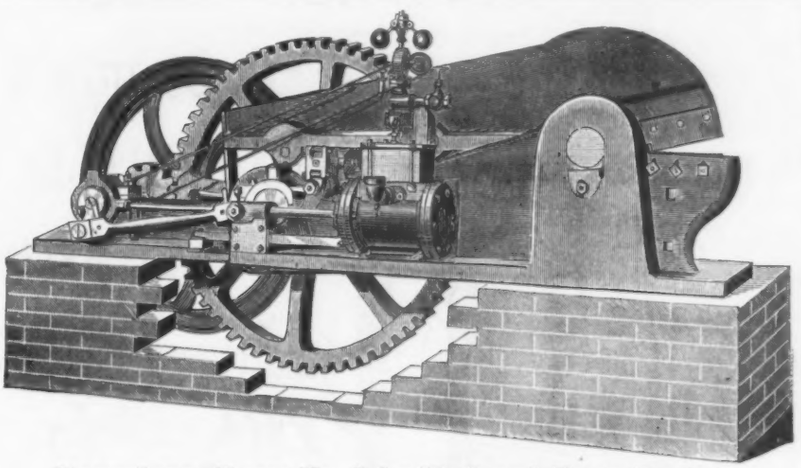

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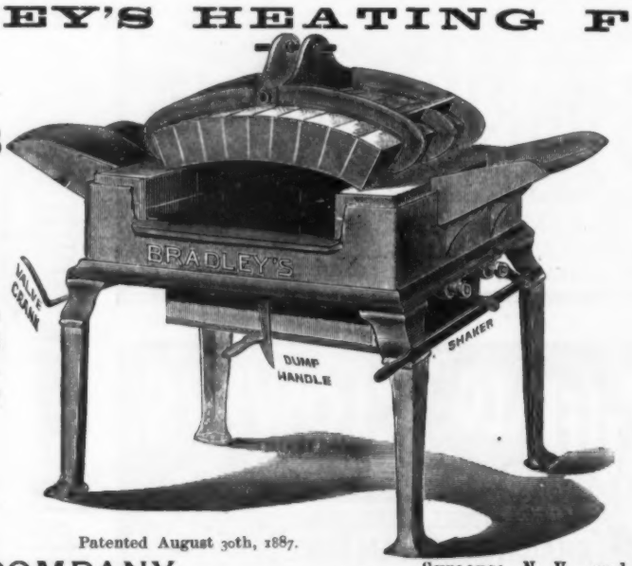

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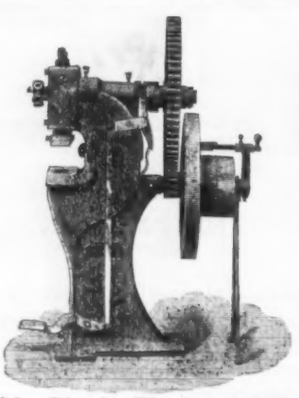

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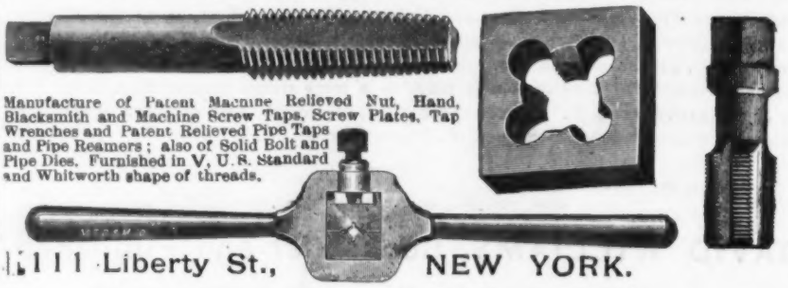

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MACHINERY ON HAND.

6-in. Crank Shaper, B. & P. New.
8-in. " " Good order.
9-in. " " H. & P. "
12-in. " " " "
12-in. " " Cheap.
10-12-15-in. " Juengst. New.
15 and 20-in. Friction Shaper, Juengst. New.
15 in. Crank Shaper, L. D. & Co. New.
20, 26 and 32-in. Shaper, L. D. & Co. New.
24-in. Shaper, Bridgeport. New.
12 in. stroke Crank Planer. Good.
12 in. stroke Trav. Head Shaper. New.
20 in. x 4 ft. Planer, New Haven. Cheap.
20 in. x 5 ft. " Ames. Good.
36 in. x 14 ft. " Enterprise. Good.
37 in. x 8 ft. " Litchly. "
60 in. x 13 ft. " Screw, P. & W. Good,
7-in. stroke Slotter, N. Y. S. E. Co. Good.
7 and 11 in. swing Hand Lathes, for brass. New.
10 and 12-in. " " " Hendey. "
No. 1 Screw Machine, wire feed, P. & W. A 1.
No. 2 Screw Machine, Browne & Sharpe. Good
No. 4 " " "
No. 5 " Jones & Lamson. "
No. 2 3-spindle Drill, Garvin. "
No. 1 and 2 Slate Sensitive Drill. New.
20, 22, 28, 25, 28 and 32-in. Drills. New.
Pond Index Milling Machine. Fair.
No. 2 Plain Miller, Browne & Sharpe. Good.
No. 2 Hand " Garvin. A 1.
No. 1 " " Pratt & Whitney. A 1.
No. 2 Lincoln Pattern Miller, Ames. A 1.
No. 5 Milling Machine. Brainard, A 1.
No. 2 Die Sinker, Pratt & Whitney. Good.
No. 3 Surface Grinder, Brown & Sharp. Good.
Hilles & Jones Shear. Good.
48-in. Gear Cutter. Cheap.
No. 3 and 4 Punch Press, Wilder. Good.
2250-lb. Steam Hammer. Bement. "
25 lb. Dead Stroke Hammer, Justice, Cheap.

Large line of Engine Lathes, Planers and Drilling Machines in stock. Send for list,

Cold Rolled Shafting in stock, all sizes.

Full line of new Machinery. Write for what you want. E. P. BULLARD,
72 Warren St., and 62 College Place, New York

Bargains in New and Second-Hand Machinery.

One 400 H.-P. Vertical Engine.
One 200 " Corliss Engine.
One 150 " Plain Slide Valve Engine
One 40 " Supplee Engine.
One 40 " I. P. Morris Co. Engine,
One 25 " Hor. Engine. 10-in. 20-in. cylinder
One 30 " Ver. Engine. Jacob Naylor's make.
One 10 " New York Safety Vertical Engine.
One 6 " Wood, Taber & Morse Port. Engine and Boiler on wheels.
One 30 H.-P. Erie City Iron Works Port. on skids
One 8 " Shapley & Wells Engine and Boiler.
One 5 " Fitchburg Vertical Engine.
Six 50 " Hor. Tubular Boilers. Good order.
One large lot of Wood-Working Machinery.
One 30 H.-P. Hor. Tubular Boiler.
One 25 " " " "
One 30 " Vertical Tubular Boiler.
One 25 " Babcox & Wilcox Water Tube Boiler
One 50-in. Boring and Turning Mill.
One 12-in. Compound Planer.
One 3 Spindle Drill.
One 36-in. Swing by 16-ft. bed Engine Lathe.
One 24 x 16-ft. Engine Lathe.
One 16 x 8-ft. Harrington Lathe.
One 16 x 6-ft. N. Y. Steam Engine Co.'s Lathe.
One 15 x 5 ft. Harris Engine Lathe.
One Fox Lathe with attachments.
One 14 x 10 x 10 Worthington Duplex Pump.
One Improved Cope & Maxwell Deep-Well Pump.
Four Sturtevant Blowers. Second-Hand.

Please write if you want Machinery of any kind. I have a large stock constantly changing.

HENRY I. SNELL, 135 North 3d St., Philadelphia.

MACHINE TOOLS.

FOR IMMEDIATE DELIVERY.

1 32 in. x 18 ft. bed, treble-geared **LATHE.**
1 36 in. x 36 x 9 ft. stroke **PLANER.**
1 40 in. x 36 x 12 ft. stroke "
These Planers are held at very low prices.
1 72 in. Pulley **TURNING MACHINE.**
1 72 in. Pulley **BORING MACHINE.**
1 13 in. **SLOTTER.**
1 42 in. Cam Milling Machine for Printing Press Cam

The Newark Machine Tool Works,
NEWARK, N. J.

FOR SALE.

4 6 x 17 Horizontal Tubular Boilers.
1 250 H.-P. Sectional Boiler.
1 9 x 18 Upright Boiler.
1 26 x 48 Corliss Engine.
1 20 x 48 Wheelock Engine.

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BAKER BLOWERS, Nos. 5½ and 6, also a No. 5 at Idaho Springs, Col.
ROOT BLOWERS, Nos. ½, 4, 5 and 7. Sturtevant Blowers, Nos. 4, 6, 7, 8 and 9.
2 WESTINGHOUSE AUTOMATIC ENGINES, 15 and 60 H.-P. each; Air Compressor; Crushers; 20-ton Galena Smelter; write and state your wants to
C. R. BIGELOW, M. E.,
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ENGINE LATHE.

THE HENDEY
18-inch Engine Lathe

— COMBINES —

Modern Design with Superior Workmanship at a Moderate Price.

NO EXTRA CHARGE FOR

Compound Rest, Hollow Spindle or Power Cross Feed.

LENGTH OF BEDS:

6, 8, 10, 12, 14 and 16 feet.

Have other Sizes of Lathes, also Shapers, Planers, &c. Send for Catalogue and prices.

THE HENDEY MACHINE CO.

Torrington, Conn.

FOR SALE.

VERTICAL ENGINES,

One 32 in. by 32 in.
One 15 in. by 11½ in.
Cylinder Boilers
Steam Pumps.

For further particulars apply to

DAN'L W. RICHARDS & CO.,
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SECOND HAND
MACHINISTS' TOOLS.

1 Planer, planes 22 ft. long, 48 x 38, double heads on cross head
1 Planer, planes 12 ft. 36 in. x 34 in.
1 7-ft. 28 x 28 Planer.
1 Planer, planes 3 ft. long, 19 in. x 16 in.
1 18-ft. bed, 50 in., Engine Lathe.
2 8-ft. 18 in., Engine Lathe.
2 Monitor Head Lathes.
1 9-ft. bed, 16 in., Engine Lathe.
1 Horizontal Boring Mill, 48 in. swing.
1 No. 1 Pratt & W. Screw Machine, Wire Feed.
1 2-spindle Pratt & Whitney Drill.
1 6-spindle Pratt & Whitney Drill.
1 2-spindle Edging Machine.
1 6-in. Crank Shaper, A1 order.

Send for List of Second-hand Tools.

New York Machinery Depot,

Bridge Store No. 16, on Frankfort st., New York.

FOR SALE AT LOW PRICES.—1 each, 12 and 16-in. Turret Lathe, Warner & Swazey, good order. 1 12-inch Automatic Turret Lathe, Freck, new, $150. 1 2-Spindle Drill Press with Adjustable Spindles, $50. 1 No. 2½ Garran Hand Feed Miller, good order, $75. 1 Power Punch, punches ⅝ x ¼, new, $125. 2 Large Screw Punches, good order and cheap. 1 3-Spindle Horizontal Nut Tapper, good order, $75. 1 36-inch Car Wheel Borer, good order, $250. 1 36-inch Pulley Turning Lathe. 1 Seymour Pulley Balancing Machine. A large assortment of Lathes, Planers, Shapers, etc. New and second-hand. Send for catalogue.
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FOR SALE.

Blowing Engine, new and first-class; Steam Cylinder 36 in. diam.; Blowing Cylinder 84 in. diam.; Stroke 48 in.; Weight 71 tons. Can ship in ten days' notice.

CLEVELAND SHIP BUILDING CO.,
Successors to Cuyahoga Steam Furnace Co.,
Cleveland, Ohio

GOOD SECOND HAND TOOLS.

I want to buy for cash good second-hand

LATHES,
PLANERS
AND DRILLS.

Address "A. B. S.,"

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DIXON'S— FOR BOILER FRONTS

there is nothing equal to Dixon's Silicon Graphite Paint. It is a beautiful black, will not burn off and will prevent rusting.

JOS. DIXON CRUCIBLE CO.,
JERSEY CITY, N. J.

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FROM
HENRY I. SNELL,
135 North Third St.,
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I have for sale cheap a new **New York Safety Steam Power Company's Steam Yacht Engine and Boiler,** with Pumps, Condenser and all attachments for the complete equipment for a boat 65 to 70 feet long, and capable of driving the same about 12 miles per hour.

FOR SALE.

ONE OF GEORGE H. CORLISS'S UPRIGHT ROLLING MILL ENGINES;

Cylinder, 32 in. x 60 in.; Shaft, 17 in. Diameter, with fly wheel of 25 tons weight and 20-foot diameter fitted to the shaft; *also* 1 Berriman Heater, 4 feet diameter, 12 feet high, with steam and exhaust pipe and fittings for same; *also* 2 Sturtevant Steel Pressure Blowers, 6 ft. diameter; Outlet, 20 x 24, with 14 in. pulley on each side for 12-in. belt. Address

NATHAN BENHAM, Hartford, Conn.

FOR SALE.

ONE SCREW PLANER.—14-foot Bed; will take in 4 feet between uprights.

Address

SHICKLE, HARRISON & HOWARD IRON CO.
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SPECIAL BARGAINS.

One 18 x 48 Horizontal Corliss Engine.
" 16 x 32 " Wright "
" 14 x 42 " Wheelock Engine.
" Copeland & Bacon Double-Hoisting Engine, 9 x 10.
" Worthington Duplex Pump 7⅛ x 4½ x 10.

Will be sold low to close.

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38 in. x 36 in. x 12 ft. Pond Planer in good order	$890
30 in. x 24 in. x 6 ft Planer, with new gears and screws	250
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14 in. x 6 ft. Engine Lathe, newly repaired	150
26 in. New Haven B. G. Drill, good order	150
4 x 6 Horizontal Engine, nearly new	125
8 x 12 Horizontal Engine, good order	150
10 x 15 Horizontal Engine, good order	175

Large stock of new Tools, Engine Boiler, &c. Send for stock list. S. M. YORK, Cleveland, Ohio.

ENGINES, &c., FOR SALE.

One pair of 30-inch by 72-inch Horizontal Engines connected to one main shaft, built by the Corliss Steam Engine Co. Cut Gear Wheel, 24 ft. 9-in. diam., 180 teeth, Jack Gear, 9 ft. 7¼-in diam., 70 teeth, with its shaft 12 ft 7 in. long, and two bearings. Valve Gear of the crab-claw pattern. Condensing Apparatus connected to each cylinder, of the Corliss Upright Pump type. The gears and all parts of the Engine are in good condition and are now in operation. These Engines are exceptionally heavy and well adapted for Rolling Mill work, or could be connected to blowing cylinders, air compressors, &c., very readily. Delivery, July 1st, 1888. Also, for sale, about 65 ft. of 7-in. Hammered Iron Shafting, with couplings, bearings, &c. Also 4 14 ft. Pulleys, 31-in. face fitted to above shaft. Apply to

JOHN WATERMAN, Treas.,
WARREN MFG. CO., Warren, R. I.
Or to REMINGTON & HENTHORN,
MECHANICAL ENGINEERS, Providence, R. I.

Providence, R. I., May 16, 1888.

ENGINES.

14 in. x 48 in. Corliss Beam.
26 in x 6 ft. "
18 in x 48 in. Greene Horizontal.
One pair Corliss Horizontal, 30 in. x 6 ft., first-class, now running.
New Engines, from 2 H.-P., Vertical or Horizontal.

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FOR SALE.

At less than half first cost, a Delamater Duplex 16 in. x 36 in. Compressor, in thoroughly good working order. Address

L. C BIERWIRTH, Sec'y, Dover, New Jersey.

Rolling Mill Machinery
For Sale.

SHEARS, ENGINES, BOILERS, FLOOR PLATES, &c.

One Heavy Plate Shear, 48-inch throat.
" Large Lever Shear. Cutting old rails.
" Small " " " scrap iron.
" Rotary " " " strips 5-16 in.
" Large Upright " " tops and bot'ms 1 in
" Small " " " ¾ in.
" Upright High-Pressure Engine, 16 x 18 in.
Two Winslow Squeezers. One new.
One Dudgeon Steam Hammer, 18 in. diam., 40 in. stroke.
Upright Tubular Boilers, 15 ft. long, 60 in. diam.
Cylinder Boilers, 20-24 ft. long, 30 in. diam.
Stacks, 30 to 50 ft. long, 30 in. diam.
One Crane (Iron) about 5 tons.
Two Cranes, about 5 tons capacity.
Cast Iron Floor Plates, 2 x 4 ft.
Boshes, Puddle Furnace Castings, Steam Piping (cast and wrought iron).
Blast Pipe, Cinder Buggies, Tanks, Rolls and Housings, &c.
Beam Engine, 14 x 30 in.
" " 30 x 60 in.

The above are in good order, and for sale in lots to suit for immediate delivery.

THOMPSON C. GILL & CO.,
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DROPS AND LIFTERS

bought, sold, or taken in exchange for new.

BEECHER & PECK,
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ROLL TURNING LATHES, BLOWER AND ENGINE.

One Single " " " 18 in. "
" Upright Engine, 6½ in. x 17 in.
" Root Blower. No. 7.
All in good order,

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One 15-Light Dynamo complete, with 15 Arc Lights. New.

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FOR SALE.

75 Tons Stove Plate.
100 Tons Machinery Iron.
Also Old Iron and Metals of all kinds.

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FOR SALE.—18 x 42 CORLISS ENGINE, built very heavy for the Brush Electric Light Co.; other styles of Automatic and Plain Slide Valve Engines, Boilers and Pumps.

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SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

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WANTED.—To buy a Good Second-hand or New 60 in x 60 in. PLANER, to plane from 15 to 30 feet. It Second-hand, must be of modern design and in first-class order.

FOSDICK & PLUCKER,
Sixth & Culvert,
Cincinnati, Ohio

FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock, Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85 two stories. Warehouse, 22 x 30, two stories in rear. Does a large and paying business, which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade. Address

W. L. HAY & SON,
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W. P. DAVIS

North Bloomfield, N. J.

HAS FOR SALE

50 Key Seating Machines.
50 Standard 20-in. Drills.
1 Engine Lathe, each 18 in., 20 in, and 22 in.
1 Shaper, each 15 in., 20 in and 24 in.
1 38 and 1 50 H. P. Automatic Engine.
1 each 10, 15, 20, 25, 30, 40, and 50 H. P. Boilers.
All the above are new and first-class.
The following second-hand Engine and Boilers:
1 each, 25, 35, 60 and 8 H. P. Horizontal Boilers and
1 35 H. P. Engine. All the above in No. 1 order.

FOR RENT.

VALLEY FORGE MILL AND WATER-POWER

(Belonging to Estate of Charles H. Rogers, dec'd.), Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.
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FOR SALE.—The Northwestern Foundry. Largest and best in Minneapolis. Located on half of block 106 (330 x 165 ft.) and part of block 105, corners Third street, Ninth and Tenth aves., South. Main building (200 x 60 ft.) is brick with slate roof, contains four Cranes, three Cupolas, &c., complete set of Car-wheel and various patterns for Stoves, Machinery, Architectural, Ornamental, Bridge and Railroad Castings. Office also of brick, 40 x 20 feet; fire-proof vault and burglar safe in same. Will sell the entire plant, including the valuable Real Estate, Railroad Tracks, Track and Wagon Scales, &c. All the above in first-class order.
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FOR SALE.

One 6 H.-P. N. Y. Safety Engine.
One Vertical Boiler, 60 H.-P. Second-hand.
One 70 H.-P. Buckeye Automatic Engine. Second-hand.
One 25 H.-P. Engine. New.
Two 600 gallon Compound Pumping Engines, with Fly Wheel. New. Address
KEYSTONE ENGINE & MACHINE WORKS,
W. L. SIMPSON, Proprietor,
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WANTED, LOCAL

Agents and Traveling Men to sell the most complete stock of Boilers and Engines, Drive Well Points and Tools and Pumps in America.

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FOR SALE—IMMEDIATE DELIVERY.

One new Star Tool Co.'s Cutting-off Machine, capable of cutting 5-in stock.
Two new Star Tool Co.'s Traverse Drills.
Twenty new modern Lathe and Planer Chucks, popular makes, all sizes, at large discounts from manufacturers prices.

DIAMOND MACHINE CO.,
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A GOOD HARDWARE BUSINESS FOR SALE.

Wishing to retire from all active business, the undersigned offer for sale their valuable and thoroughly established business. The stock is clean and well selected. Waverly, New York, is a growing place, with considerable manufacturing, and surrounded by a good farming country; has good water, gas works and sewers, also five railroads radiating from it. The location of the store building is central, with every convenience, including hydraulic elevator, &c. The business has been conducted successfully as wholesale and retail; can be continued as we have conducted it, or else we can soon reduce the stock, and it can be conducted as a retail alone.
In negotiating sale, reference given and required.

MERRIAM BROS., Waverly, N. Y.

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AN UNUSUAL OFFER.

An old established Hardware Business doing the leading wholesale and retail trade in one of the best towns in Minnesota. This is an opportunity seldom offered. Reason for sale, death of proprietor. Address

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IRON ORE PROPERTY.

For Sale or Lease, situate within three miles of the C. & O. Ry., at White Sulphur Springs, W. Va., about 3000 Acres, underlaid near surface by a persistent seam of red oxide iron ore from 10 to 60 feet in thickness. Numerous analyses show

61 per cent. Metallic Iron.
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Six miles of outcrop have been proved by a number of openings. The helderberg limestones, more than 300 feet thick, are exposed at many points, and the hills containing the New River coking coals are within sight. There are good sites for furnace plants in the immediate vicinity, and ample water for all purposes. For further particulars, apply to

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ENGINE PATTERNS FOR SALE.—A BARGAIN.

Patterns complete, of a celebrated and new Stationary and Yacht Engine; from a 3 up to a 16 inch cylinder. Patterns new, with core boxes; excellent condition. To be sold at a sacrifice on account of owner retiring from business. Can be examined any time by calling or addressing the undersigned.

BORDENTOWN FOUNDRY & MACHINE WORKS,
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FOR SALE

A well-established Hardware and Sporting Goods business, located in Jacksonville, Florida. The stock amounting to from $10,000 to $15,000 will be sold at a sacrifice to close the business; sales last year $60,000. The firm has control of the sporting goods trade in Florida, and lease of the best stand in Jacksonville. Address

C. B. BENEDICT,
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A PUSHER with $3000 capital can secure ¼ interest in a job foundry situated in the heart of a city of 250,000 population. Grand chance to the right man. Reference exchanged. Address "E. S.," care of E. S. Adams, Cleveland, Ohio.

FOR SALE.

One Second-hand Twiss Automatic Engine, 10x20; also new Automatic Engines, from 20 to 100 h.-p., and Vertical Engines, 4, 6 and 8 h.-p.
NELSON W. TWISS, New Haven, Ct.

TO BLAST FURNACEMEN.

A large lot of Watson's Fire-Brick, new, for sale cheap.
"W. H. Z.," P. O. Box 1071, N. Y. City.

WANTED.

HARDWARE SPECIALTIES to manufacture or will buy good patents. Address with particulars

"C. T. G.,"
Office of *The Iron Age*, 66-68 Duane St., N. Y.

AN IRON CO. having large quantity of orders, a well-equipped, newly built and well located Plant, for the manufacture of Steam-Heating Material, such as Radiators, Pipe Fittings, &c., and worth about $50,000, net, wish to increase their capital and business and obtain from $10,000 to $30,000, and a gentleman capable of managing office affairs. It is the only concern of the kind in the Northwest, and the trade in this section is unlimited. Address, "Iron Co.," Room 7, Gilfillan Building, St. Paul, Minn.

Hardware Stock Wanted.

The undersigned wishes to exchange a new dwelling and store room with all new out-building (built in 1884), paying 6% above taxes and insurance on a good clean stock of Hardware and will pay cash for difference. The above store stands in one of the largest and best stands in Adams and would be a paying investment for any one wishing to quit the hardware business. For further particulars address

"BOX 100,"
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A HARDWARE BUSINESS in one of the best cities of Kansas; stock will invoice upwards of ten thousand dollars. Crops in Kansas, and prospects for the coming fall trade, were never better. Business been established ten years. Reasons for wanting to sell, ill health of family. None but those who have money and mean business need correspond. For particulars, address at once

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ASSIGNEE'S SALE.

Smith, Beggs & Ranken Machine Company Property!

Embracing nearly an **Entire Block of City Real Estate** described as follows: The **whole Main Street front of City Block No. 29**½; being 240 feet on West side of said street, with a frontage of **160 feet on East side of Second Street; 300 feet on South side of Monroe Street** (entire block front), by **150 feet on North side of Clinton Street**; being Lots Nos. 34, 35, 36, 62 and 63 of said Block; also all the improvements, machinery, fixtures, tools and patterns on the above described premises.
This property (being one of the largest and most complete establishments of the kind in the Western Country) will be sold by the undersigned, by order of Court, at Auction, on the premises, to the highest bidder, for cash, subject to a mortgage of about $60,000, on Tuesday, the 21st day of August, 1888, between the hours of 12 o'clock noon and 2 o'clock p. m. of said day.

WM. H. THOMSON, ASSIGNEE,
at Boatmen's Saving Bank,
St. Louis, Mo., July 9th, 1888.

ROLLING AND NAIL MILL MACHINERY FOR SALE.

Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).
One 16-in. Nail Plate Train of three stands of rolls, with pinions, tools and fixtures complete.
One 18-in Muck or Forge Train, two stands of rolls.
One 50c-Horse-Power Corliss Beam Engine, with condenser, pumps and other connections.
70 Nail Machines.
3 Spike "
3 Guillotine or Plate Shears.
15 Grindstones, fixtures and countershafts.
43 Gould's Patent Nail Feeders.
About 600 ft. Shafting with pulleys; also Lathes, Planers, Drills and all necessary tools to do repairs
All in perfect running order and will be sold cheap, as a whole or in parts. Above now located at Weymouth Iron Works, East Weymouth, Mass.
Enquire of

J. F. ROGERS, 101 Milk St., Boston, Mass.
or J. M. LEONARD, Somerset, Mass.

FOR SALE.—Two 80 horse-power Locomotive Boilers, first-class condition, good for 75 lbs. Second-hand Iron Tanks, all sizes. Wrought and Cast Scrap, Red and Yellow Scrap, Brass, &c.

BUSSENIUS & CUNLIFFE,
12th and Washington Ave.,
Philadelphia.

MR. HARDWARE

dealer and traveling man, take due notice that I give 20 per cent. from my regular established prices on Boilers and Engines. Write for Catalogue. Also the largest stock of Drive Well Points and Tools and Pumps in the country.

H. M. SCIPLE,
Bordentown, N. J.

AGENCY WANTED

OF

WIRE NAIL MILL

For New York, New Jersey and New England States.
Address "D. G.," Box 91,
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TO LET.

Office and Sample Room.
One half of Basement. All of Subcellar.
HUMASON & BECKLEY MFG. CO.,
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WANTED.—A large SHEAR of sufficient strength to cut standard section Iron or Steel Rails, or 5-inch round Iron cold. Address
THE WARREN IRON & STEEL CO.,
Warren, Ohio.

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Specially arranged for the use of
The Hardware Trade and all who buy or sell by "List and Discount."

FOURTH EDITION.

An entirely new book, enlarged, improved, perfected. The best and most practical book of the kind ever published; 129 pages, over 40,000 computations, absolutely correct; every page can be instantly referred to; bound in leather; 4x6 inches; price by mail *Three Dollars*. Address
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—BY—
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On Wednesday, Thursday and Friday, August 8, 9 and 10, 1888, at ten o'clock, each day, at their Salesrooms, Nos. 12 Murray St. and 15 Park Place, New York, large and attractive lines of Table and Pocket Cutlery, Carvers, Butcher Knives, Scissors, Shears, Plated Flat Ware, etc., by order of manufacturers and importers. Full particulars in circulars and catalogues, and in later issues of *The Iron Age*.

HAYDOCK & BISSELL, Auctioneers,
New York.

FOR SALE.

HARDWARE STORE located in one of the largest cities on the New York, New Haven and Hartford R. R. *Established in* 1848. Location best in the city. Will inventory about $12,000. Satisfactory reasons for selling. Address

"N. N. & H.,"

Office of *The Iron Age*, 66-68 Duane St., N. Y.

4 dozen Plated Mortise Knobs, 2¼ inches, at $6.00 per dozen.
250 gross Fancy Wood Shutter Knobs, 1½ inches, at 50 cents per gross.
For sale by
JOHN BROWER,
P. O. Box 1423,
New York.

FOR SALE.

A rare chance is offered for the purchase of one of the oldest Wholesale Hardware Stores in the South (established 1839); a clean, well assorted stock; no shop worn goods; stock will inventory $30,000; can be reduced if so desired; good reasons for selling. For particulars address

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Two or three good lines of
STAPLE GOODS IN HARDWARE
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Two young men of long experience in Wholesale Hardware business, well acquainted with the trade in Kentucky and the South, solicit correspondence with manufacturers desiring to establish a branch or agency in Louisville, Ky., for Heavy and Light Hardware, Pig Iron, &c.

Address LOCK BOX No. 20,
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1 Horizontal Engine, 18 x 44, about 60 horse-power; 8-inch Wrought-Iron Shaft, about 8-ton Fly-Wheel in Segments, made by Fishkill Landing Machine Co. In good order.
1 Horizontal Engine, 12 x 30, about 35 horse-power; 6-inch Wrought-Iron Shaft, 14 ft. Fly-Wheel in Segments, manufactured by J. S. Bunce & Conwork. In good order.
1 Todd & Rafferty Hoisting Engine, two 10-inch Cylinders with 14-inch stroke, about 35 horse-power. In fair condition.
1 Todd & Rafferty Hoisting Engine, two 12-inch Cylinders, with 16-inch stroke, about 45 Horse-Power. In fair condition.
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Hardware Manufacturers' Agent,
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HARDWARE SALESMAN WANTED.—Wanted one good Hardware Clerk to go South by the 20th of September, about 25 years old and unmarried, who has experience in Traveling. It is desirable but not necessary that he should have some means, to take an interest in the business. Address, with full particulars of your experience, also what salary wanted, "H," Office of Iron Age, 66 & 68 Duane Street, New York.

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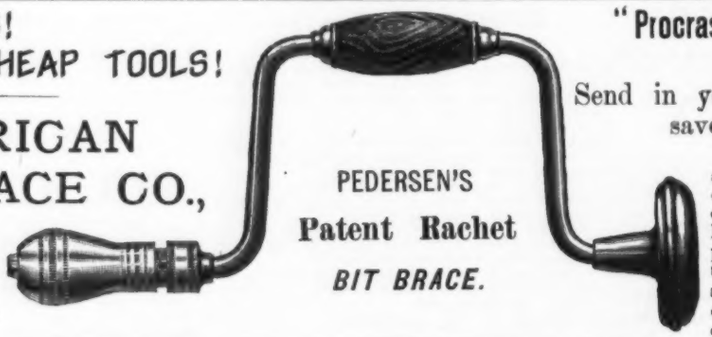

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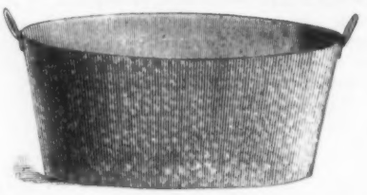

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FOR DISH PAN, &c., &c.

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Sienna, Burnt, in oil	10 @ 16 @ 20¢
Sienna, Raw	11 @ 15 @ 25¢
Umber, Burnt, powdered	4 @ 8¢
Umber, Burnt, in oil	9 @ 12 @ 15¢
Umber, Raw, powdered	4 @ 7½¢
Umber Raw, in oil	9 @ 12 @ 15¢

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Per Box 50 feet.

	Sizes	Single. 1st.	2d.	3d.	4th.
		E F H	I E H	H H	H B
25	6 x 8 to 10 x 15	$10.50	$9.00	$8.50	$8.00
40	11 x 14 to 16 x 24	11.50	10.75	10.25	9.75
50	18 x 22 to 20 x 30	15.50	14.00	13.00	12.50
54	15 x 36 to 24 x 30	16.50	15.00	13.50	.....
60	26 x 28 to 24 x 36	17.75	16.25	14.75	.....
70	26 x 36 to 26 x 44	19.00	17.50	15.25	.....
80	26 x 46 to 30 x 50	21.00	19.50	17.00	.....
84	30 x 52 to 30 x 54	22.00	20.25	18.00	.....
90	30 x 56 to 34 x 56	23.00	21.25	19.00	.....
94	34 x 58 to 34 x 60	24.00	22.75	21.00	.....
100	36 x 60 to 40 x 60	26.50	24.50	23.00	.....

	Sizes.	Double. 1st.	2d	3d	4th
		E F H D	I E H D	H H D	H B D
25	6 x 8 to 10 x 15	$13.00	$12.50	$12 00	$11.50
40	11 x 14 to 16 x 24	16.00	15.00	14.50	....
50	18 x 22 to 20 x 30	20.50	19.50	18.50	...
54	15 x 36 to 64 x 30	22.00	20.75	19.50	...
60	26 x 28 to 24 x 86	25.00	23.00	21.50	....
70	26 x 36 to 26 x 44	26.00	25.00	23.00	....
80	26 x 46 to 30 50x	28.00	26.50	24.50	....
84	30 x 52 to 30 x 54	30.00	28.00	26.00	....
90	30 x 56 to 34 x 56	31.00	30.00	28.00	...
94	34 x 58 to 34 x 60	32.50	31.00	29.00	....
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50	18 x 22 to 20 x 30	15.50	14.00	13.00	12.50
54	15 x 36 to 24 x 30	16.50	15.00	13.50	....
60	26 x 28 to 24 x 36	17.75	16.25	14.75	....
70	26 x 36 to 26 x 44	19.00	17.50	15.25	....
80	26 x 46 to 30 x 50	21.00	19.50	17.00	....
84	30 x 52 to 30 x 54	22.00	20.25	18.00	..
90	30 x 56 to 34 x 56	23.00	21.25	19.00	....
94	34 x 58 to 34 x 60	24.00	22.75	21.00	....
100	36 x 60 to 40 x 60	26.50	24.50	23.00	..

United Inches.	Sizes.	Double. AA	A	B	C
25	6 x 8 to 10 x 15	$13.00	$12.50	11.00	$10.00
40	11 x 14 to 16 x 24	16.00	15.00	14.50	12.00
50	18 x 22 to 20 x 30	20.50	19.50	18.00	....
54	15 x 36 to 24 x 30	22.00	20.75	18.75	....
60	26 x 28 to 24 x 36	25.00	23.00	21.00	....
70	26 x 36 to 26 x 44	26.00	25.00	22.50	...
80	26 x 46 to 30 x 50	28.00	26.50	33.75	....
84	30 x 52 to 30 x 54	30.00	28.00	25.25	....
90	30 x 56 to 34 x 56	31.00	30.00	27.00	....
94	34 x 58 to 34 x 60	32.50	31.00	28.00	....
100	36 x 60 to 40 x 60	36.00	33.50	30.00	....

Sizes above—$10 per box extra for every 5 inches.
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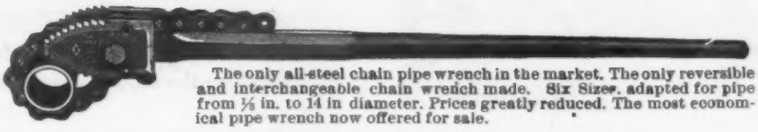

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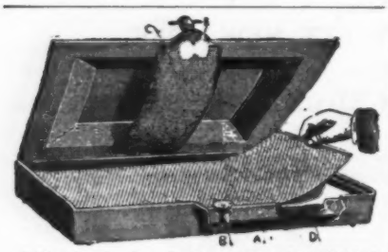

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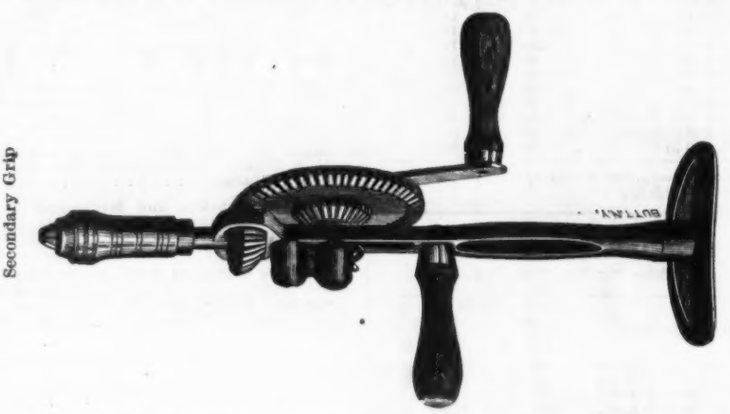

This is the Drill which we have made for many years and sold at $30 list. It has a Malleable Iron Stock, Japanned, Rosewood Handles, Polished and Plated Chuck, changeable Gears, one even and the other 3 to 1. It has a Barber Improved Chuck with our recent improvement, which makes it hold perfectly tools of all shapes and sizes.

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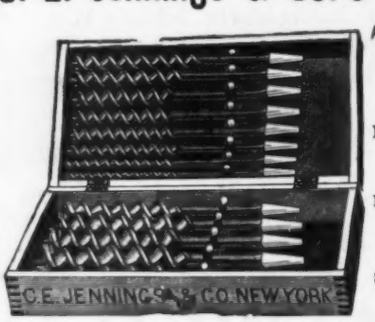

All our Auger Bits are made of Solid Cast Steel and warranted

This illustration represents our Auger Bits put up in Fancy Wood Boxes with rack to hold one Auger Bit of each size

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No. 30 Set. C. E. Jennings & Co.'s Extra Double Spur Augur Bits: 13 Bits, 32½ Quarters, per set..... $3.50

Sold by all first-class Hardware dealers. If you fail to obtain them we will forward on receipt of price.

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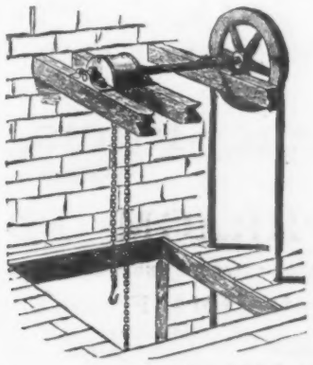

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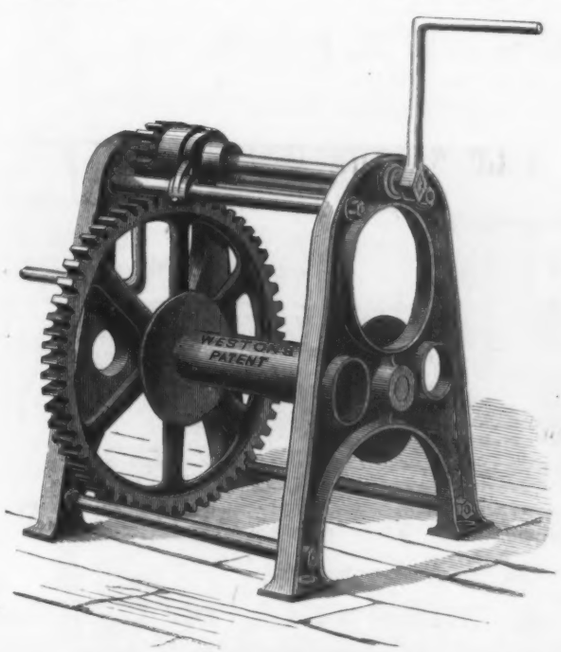
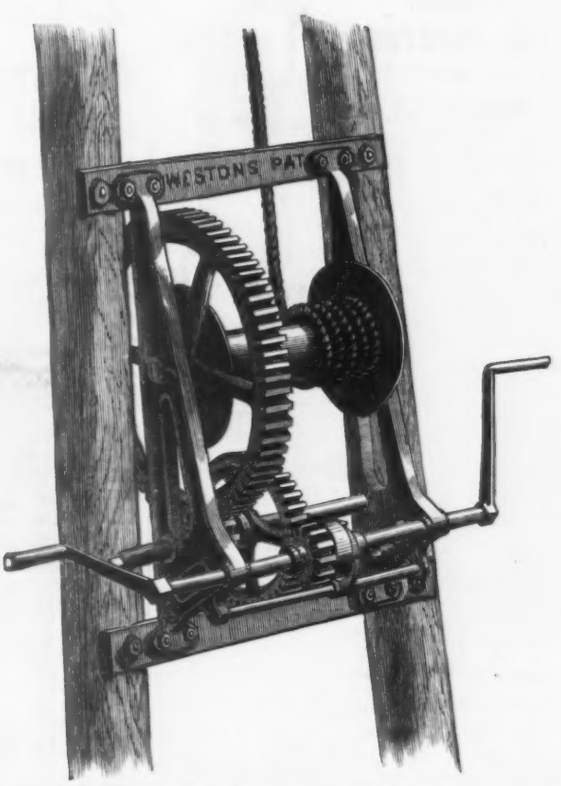


WESTON'S SAFETY CRAB.



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DOUGLAS' DIAPHRAGM PUMPS, "Loud Patent.

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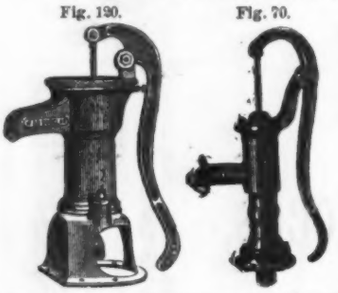
Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig. 130. Fig. 70.



or wherever it is desired to raise a large quantity of water by **hand power.**

The pump has large valves (accessible by hand) and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

Capacity from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced.

Made either as shown in cut for Hose or for IRON Pipe Suction underneath.

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Fig. 209. Fig. 381.

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FIG. 114.

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Plain and Ornamental Butts,
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Union Coil Door Springs,
Galvanized Pump Chain,
Patent Rubber Buckets,
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Hydraulic Rams, Power Pumps,
&c., &c., &c.

FIG. 114 REPRESENTS OUR

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It is made of brass, is strong and light, and is the best pump of its kind in the market. Write for prices.

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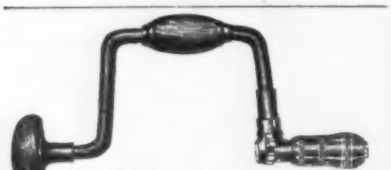
Cistern, Pitcher, Well and Force Pumps.

Please send for Catalogue and prices. Special Discounts to Dealers.



Our 2d Improved BARBER

is the best Brace on the market. The socket will not spread. The jaws are pinned in so they will not drop out. The sleeve is heavier and will not split open by the pressure of the jaws. We make two sizes of socket, which has never been done before. The 2d Improved BARBER, with Eclipse Ratchet attachment, is the best Ratchet made. We make the Amidon Corner Brace, Globe Jaw Brace, and all the other improved styles of BARKER Braces. Catalogues cheerfully supplied on application. AMIDON & BASTEDO, 135 Main St., Buffalo, N. Y.

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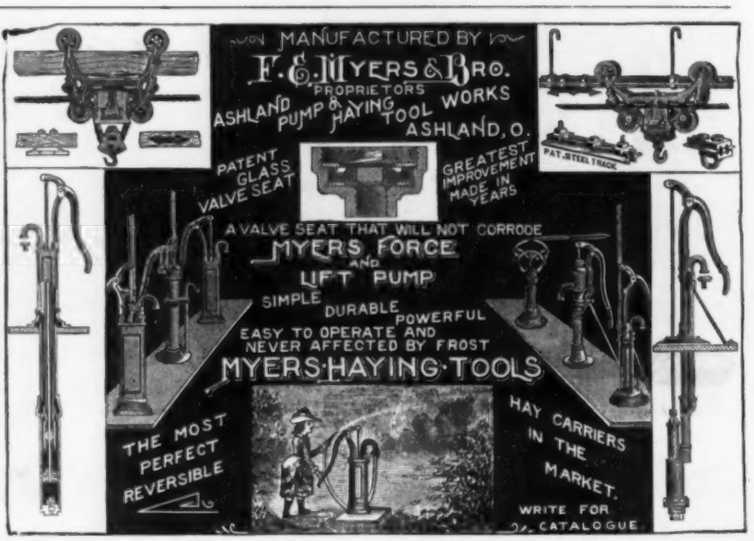

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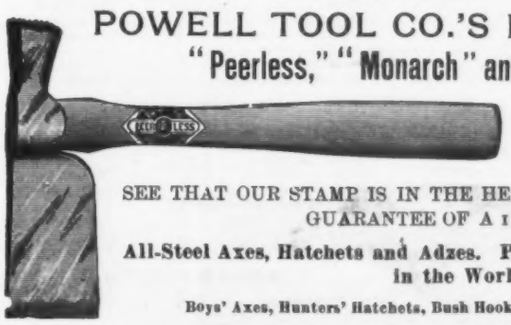

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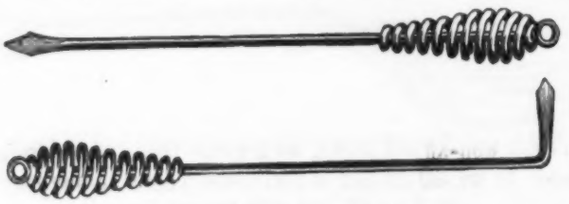

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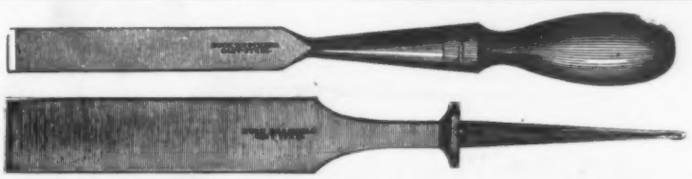

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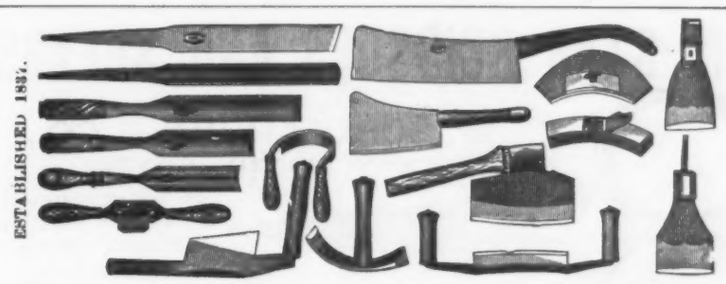

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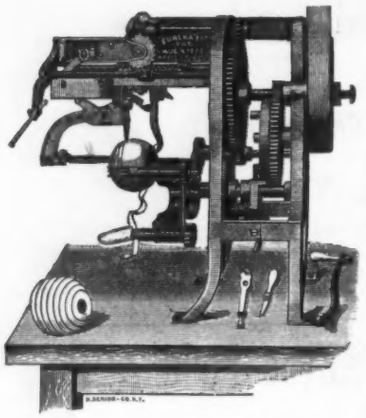

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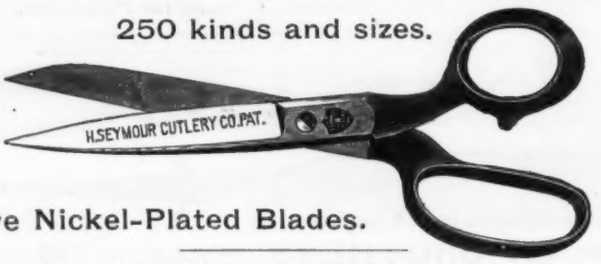

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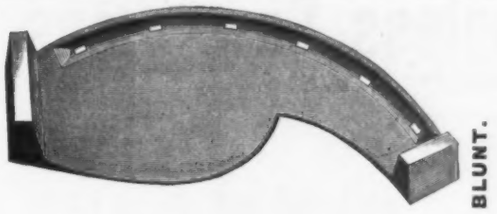
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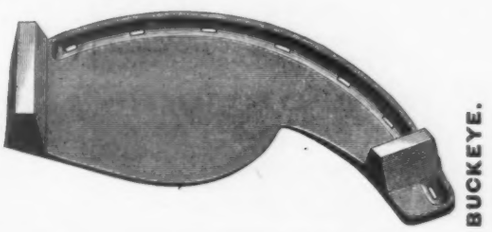
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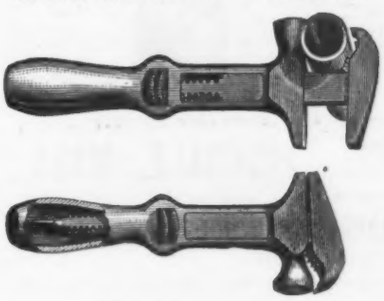

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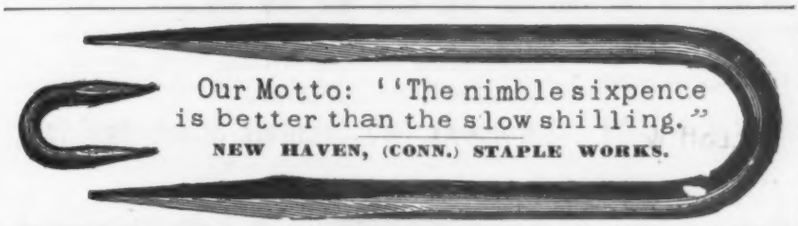

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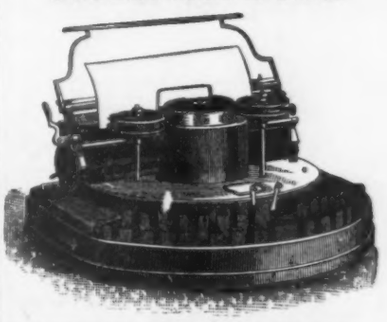

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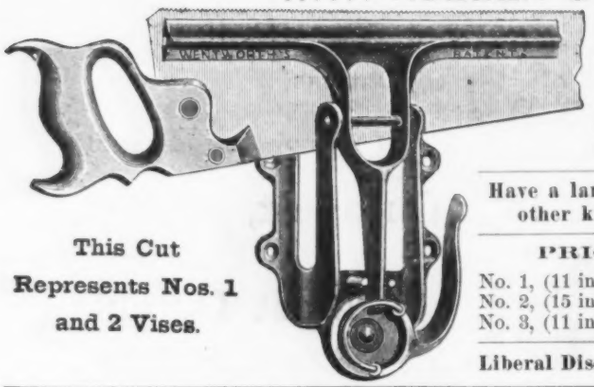
Wentworth's Patent Noiseless Saw Vises,

WITH RUBBER CUSHIONED JAWS,



This Cut Represents Nos. 1 and 2 Vises.

Prevent all vibration and render Saw Filing Noiseless.

Will make no more noise than filing on a solid piece of Iron.

Have a larger sale than all other kinds combined.

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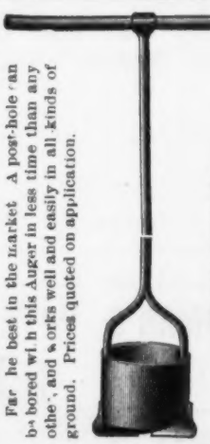

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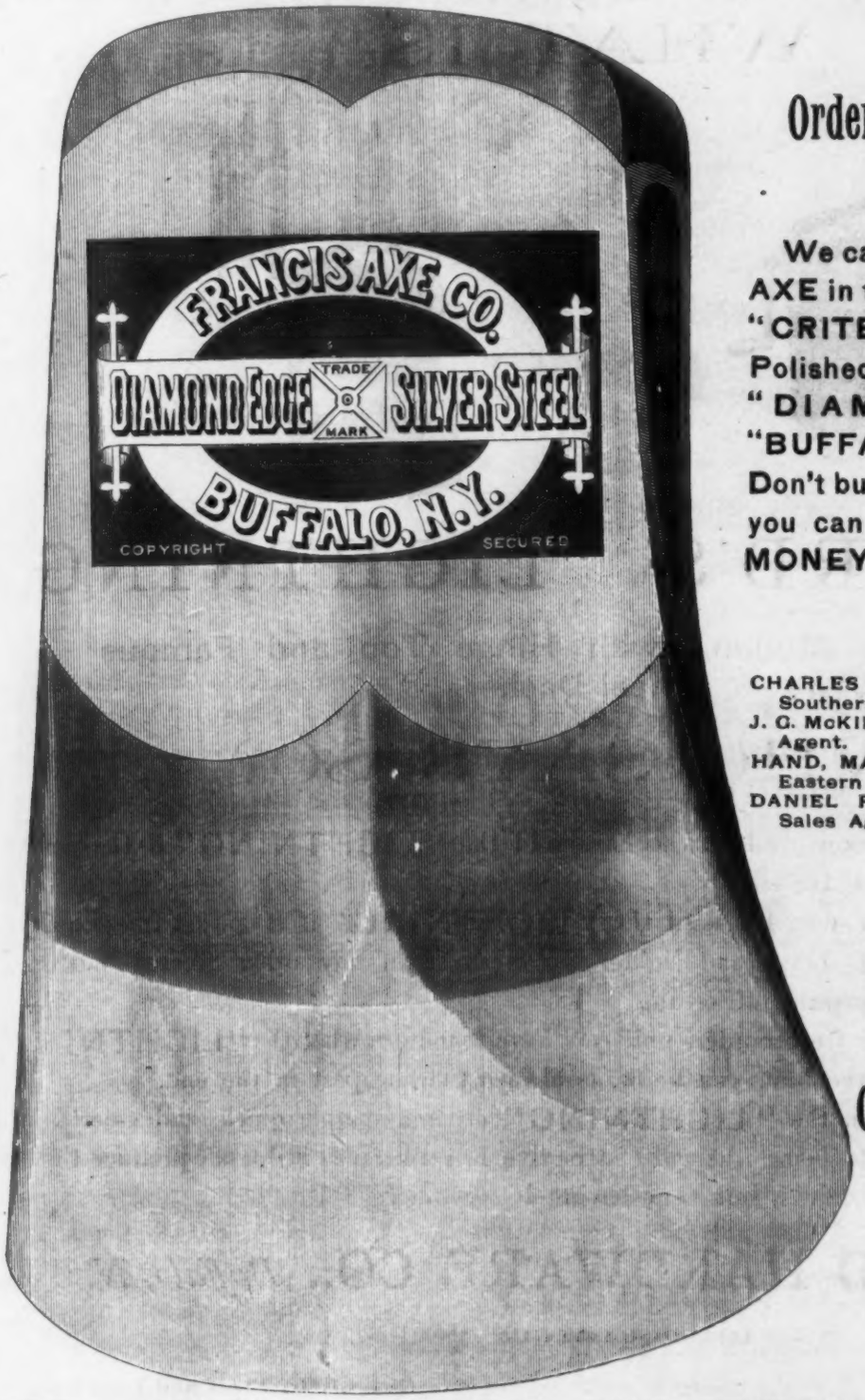

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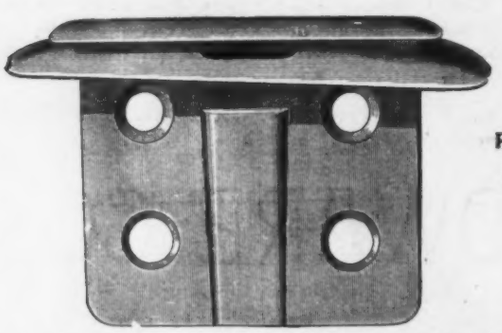

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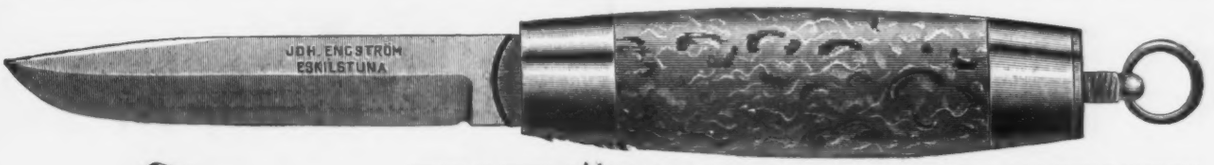

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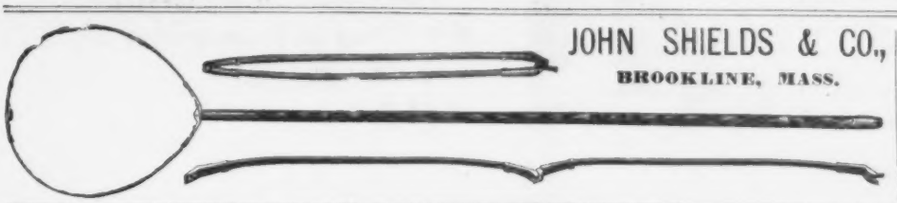

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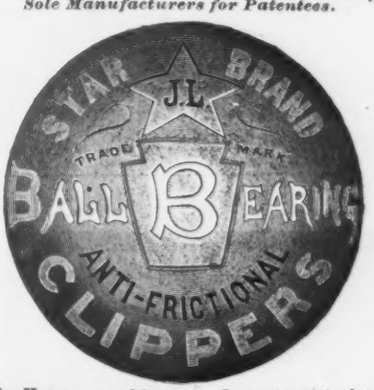

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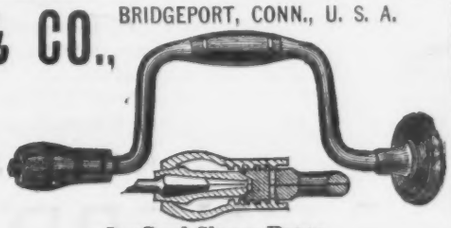
Spofford Bit Brace.



Spofford Sleeve Brace.

The Spofford Bit Brace is made under Letters Patent of the U. S. A., granted to N. Spofford, March 23, 1880 assigned to John S. Fray & Co.

All Iron, Five Sizes.

No. 7	7 inch sweep.
No. 8	8 "
No. 10	10 "
No. 12	12 "
No. 14	14 "

Cocobolo Head and Handle, Nickel Plated.

No. 107	7 inch sweep.
No. 108	8 "
No. 110	10 "
No. 112	12 "
No.	7 "

Sleeve Brace, Nickel Plated.

No. 70	7 inch sweep
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No. 100	10 "
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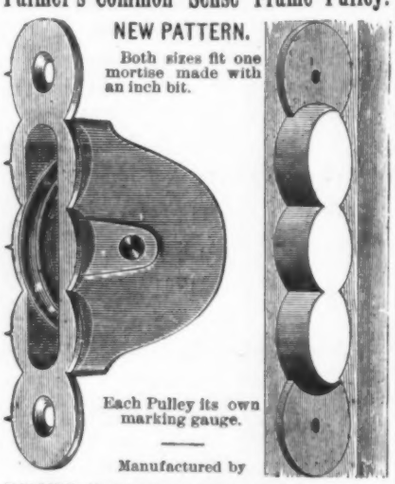
NEW PATTERN.

Both sizes fit one mortise made with an inch bit.



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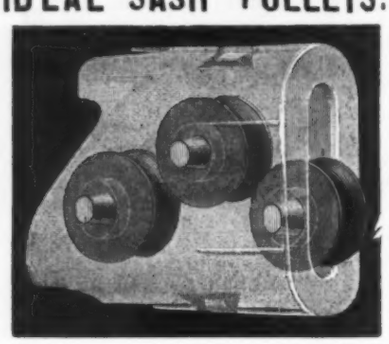

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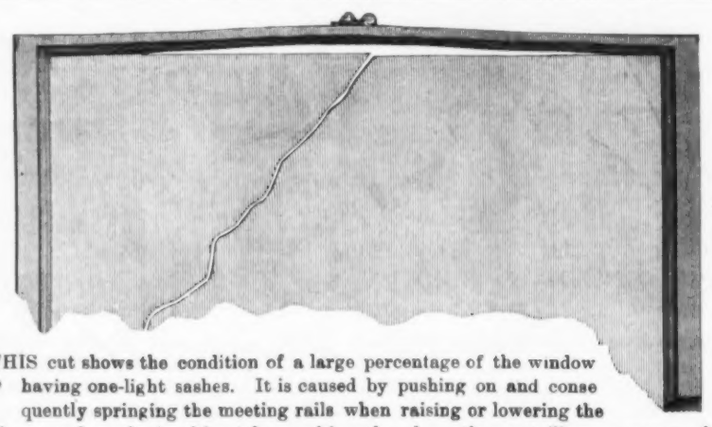

THIS cut shows the condition of a large percentage of the window having one-light sashes. It is caused by pushing on and consequently springing the meeting rails when raising or lowering the windows, and results in ultimately cracking the glass, thus entailing an expense for repairs greater than the cost of applying Wigger's Patent Sash Lifters. These Sash Lifters obviate this trouble and also prove a great convenience in operating this class of windows, as previously described in the columns of *The Iron Age*.

The steadily increasing demand for these goods proves their utility, and also that both Architects and their Clients appreciate their merits, and that many Architects have specified them on buildings to be completed this fall. We shall be pleased, therefore, to send samples, sample cards and circulars (with blank space for dealers' name), on application, as the goods will be supplied exclusively through the Builders' Hardware Trade.

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AMERICAN MAKE.

32 and 38 Caliber.

"S. & W."

C. F. Cartridge.

Full Nickled, Rubber Stock, all Steel.

32 Cal. 7 and 38 Cal. 6 Shots.

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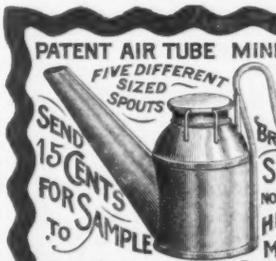

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CALIBRE 32, WEIGHT 14½ OZ.
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NOW READY,

SUPERIORITY IN EVERY POINT UNIVERSALLY CONCEDED.

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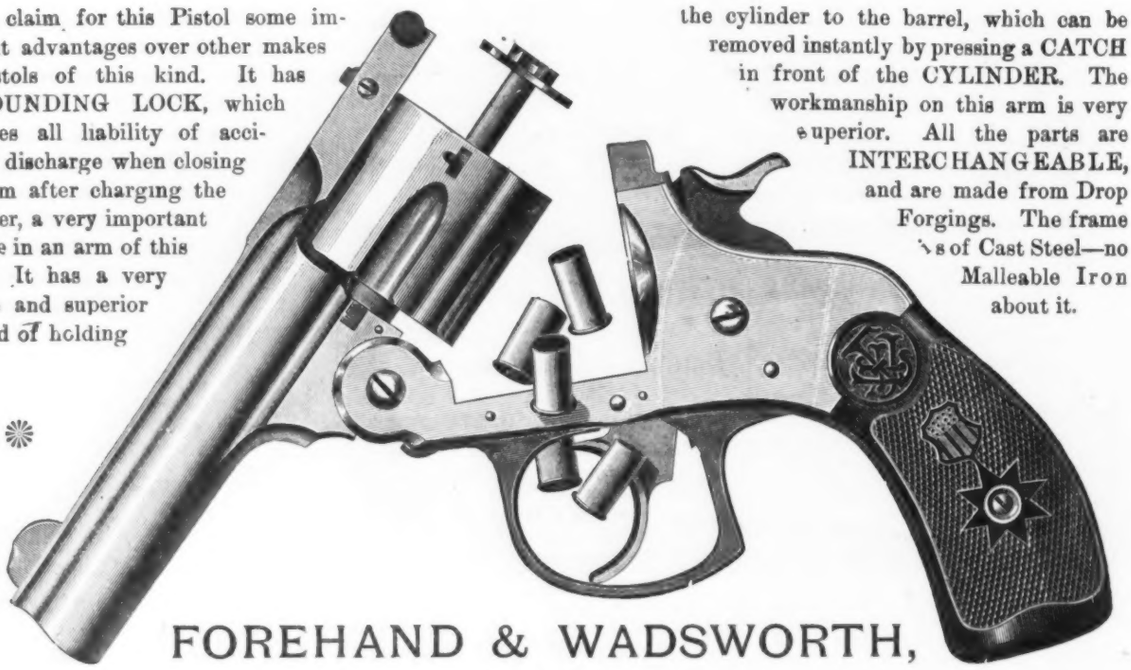
New Model Automatic Shell-Extracting Revolver

32 and 38-100 Center Fire.

We claim for this Pistol some important advantages over other makes of pistols of this kind. It has REBOUNDING LOCK, which obviates all liability of accidental discharge when closing the arm after charging the cylinder, a very important feature in an arm of this kind. It has a very simple and superior method of holding the cylinder to the barrel, which can be removed instantly by pressing a CATCH in front of the CYLINDER. The workmanship on this arm is very superior. All the parts are INTERCHANGEABLE, and are made from Drop Forgings. The frame is of Cast Steel—no Malleable Iron about it.



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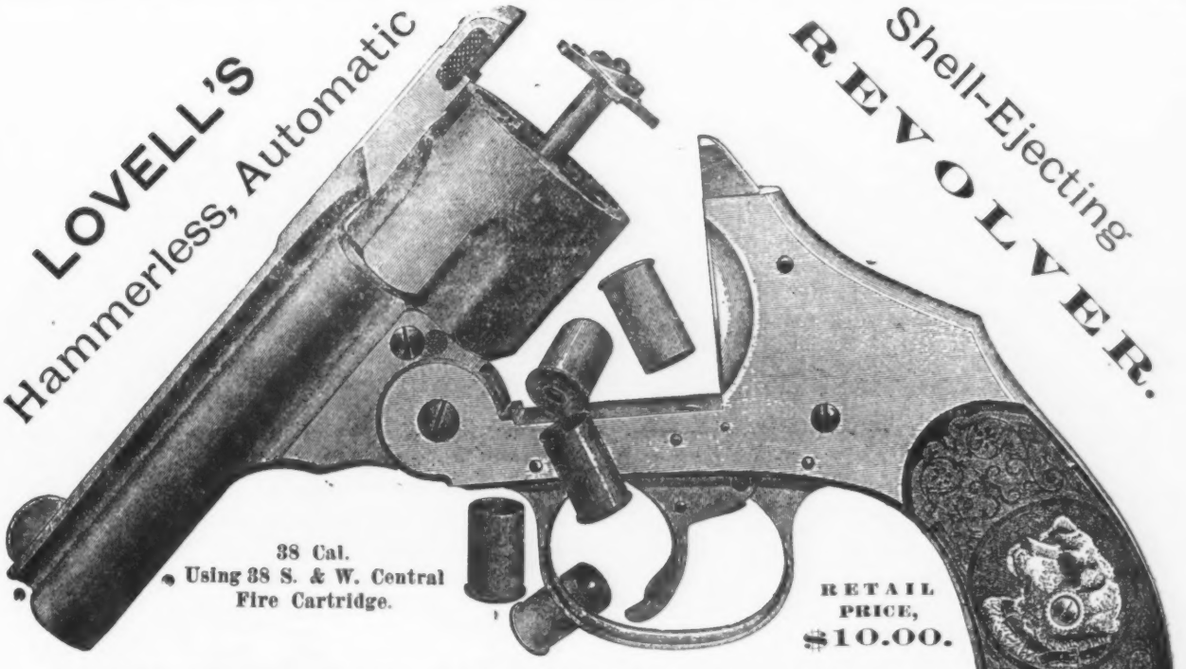

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Using 38 S. & W. Central Fire Cartridge.

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This Revolver has many improvements not to be found in any other make, including *Improved Automatic Shell Ejector, Rebounding Lock.* Improved method of instantly removing the Cylinder, and the *Safety Attachment* in forward part of Trigger which renders accidental discharges *absolutely impossible. It is the Safest Revolver Made.* Descriptive Circular and Prices to the Trade Furnished on Application.

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The "NEW BAKER" cannot be excelled for Close, Hard, Long-Range Shooting in the Field or at the Trap by any Gun made, no matter what the price.

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We agree to replace at our Factory all parts that fail through defects of material or workmanship without charge to our customers whether the Gun is purchased direct from us or through dealers. The NEW BAKER is made in both 10 and 12 Gauges. The 10 Gauge Barrels being 30 or 32 inches long, and weighing from 8 to 11 pounds. The 12 Gauge are made 28, 30 and 32 inches long, weighing from 7½ to 9 pounds. All Guns being Full Choked or one Barrel Choked, and the other Cylinder or modified Choke as ordered without extra charge.

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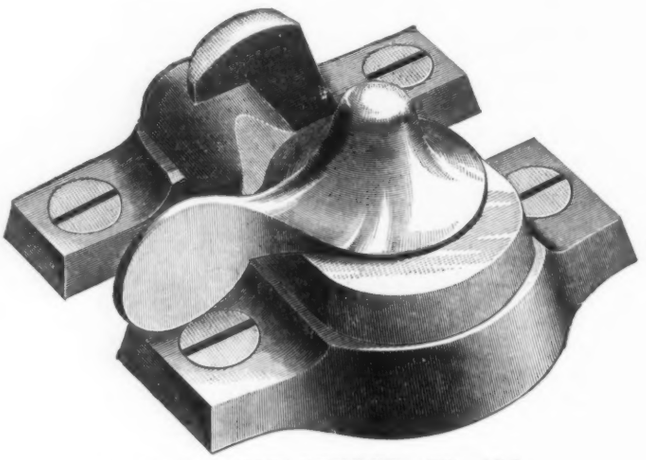
A very important feature of the IVES SASH LOCK, is in its securely locking when closed and simultaneously drawing the meeting rails closely together All the movements are accomplished by cams without the instrumentality of springs, thus avoiding the possibility of getting out of order.



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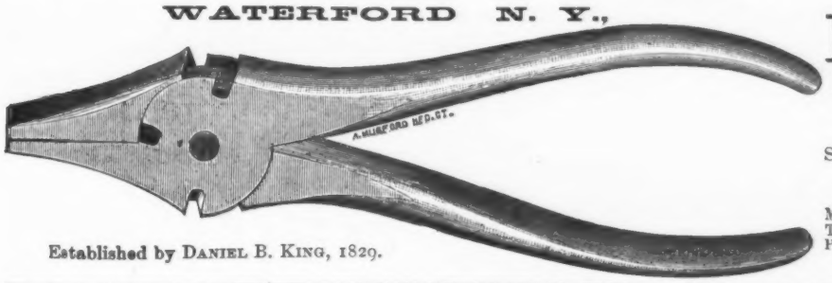

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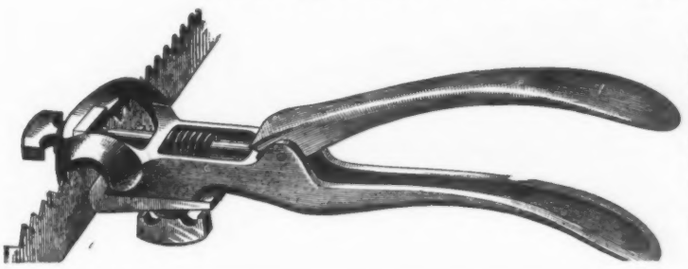

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Peter Wright's Patent Solid Wrought Anvil.

PETER WRIGHT PATENT SOLID WROUGHT

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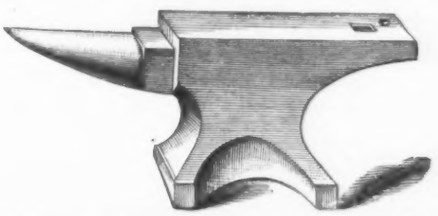

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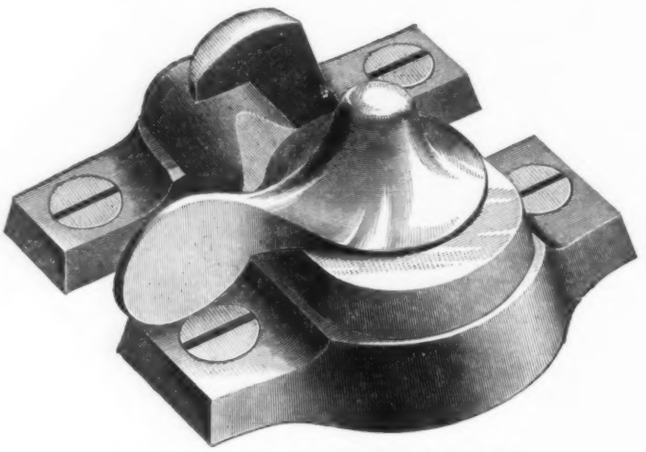

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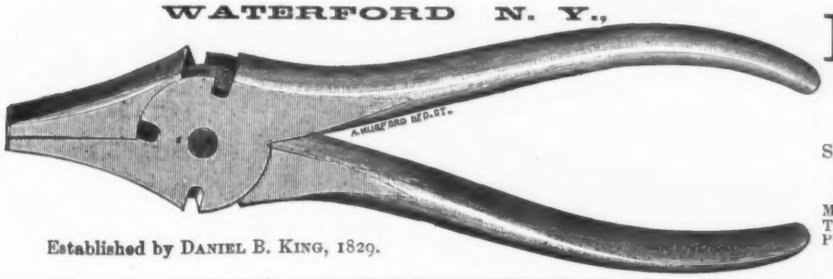

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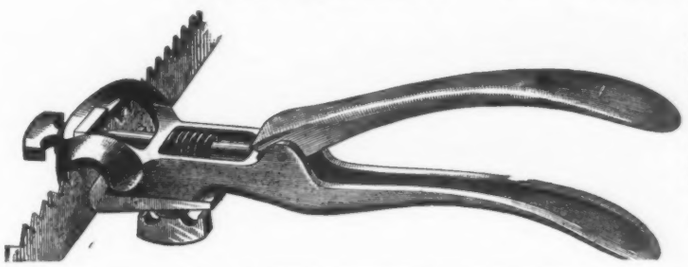

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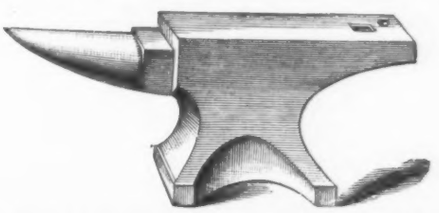

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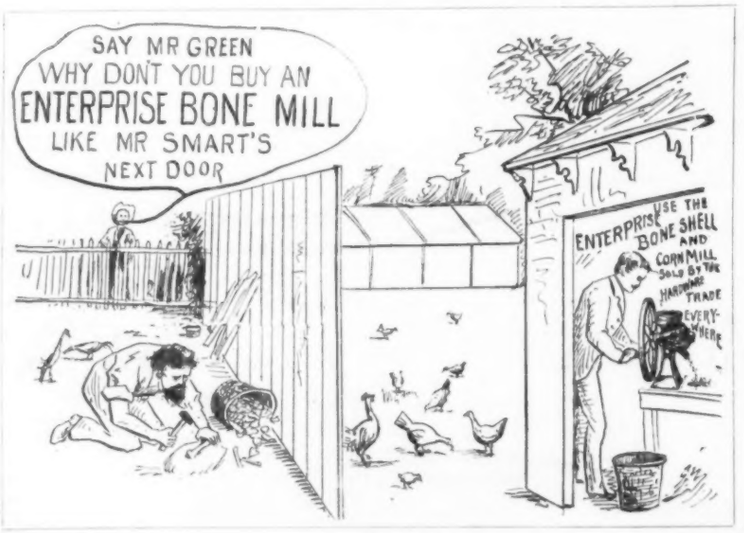

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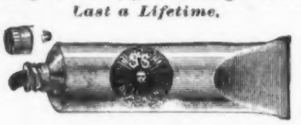

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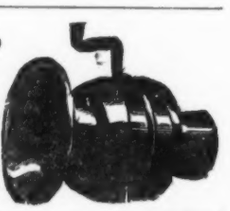

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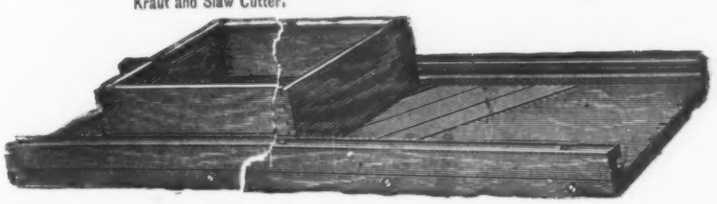

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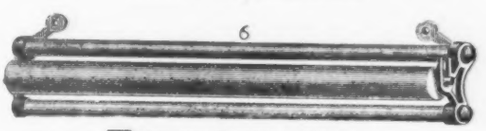

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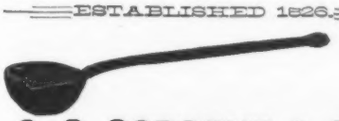

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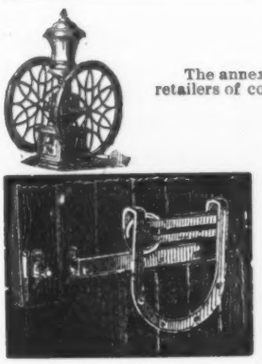

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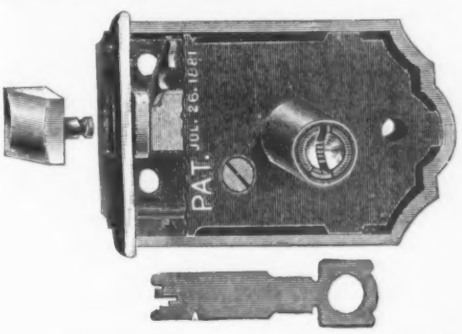

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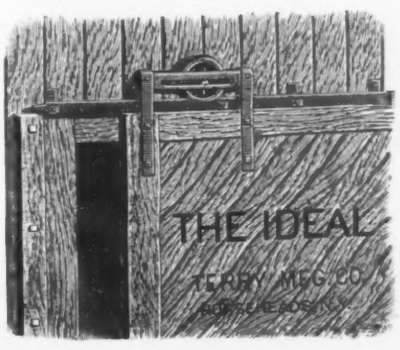

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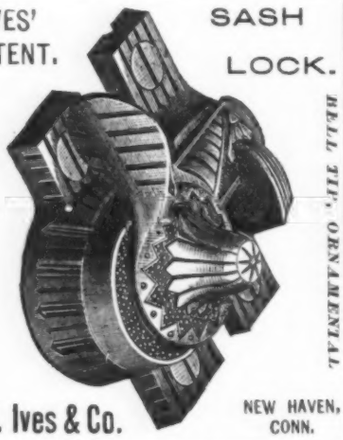

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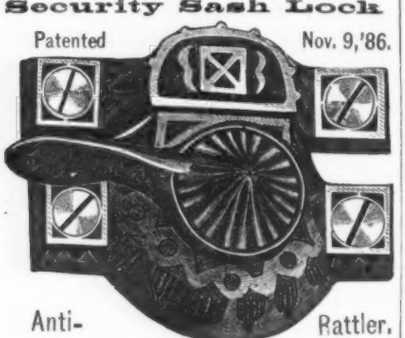

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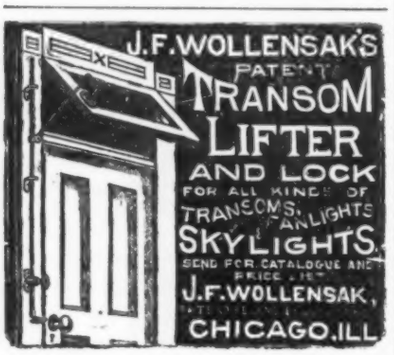

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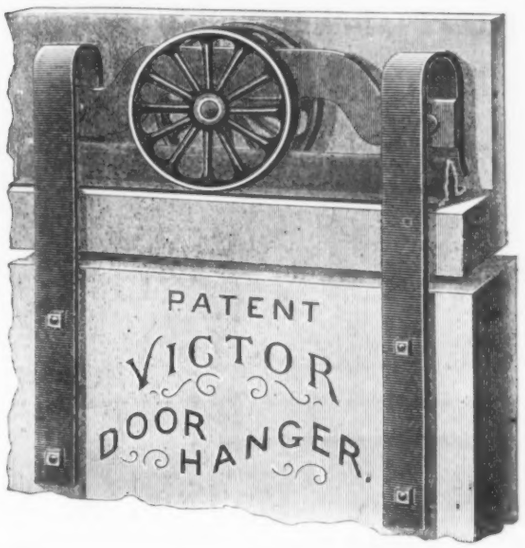

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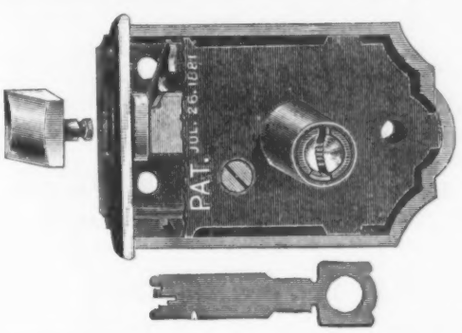

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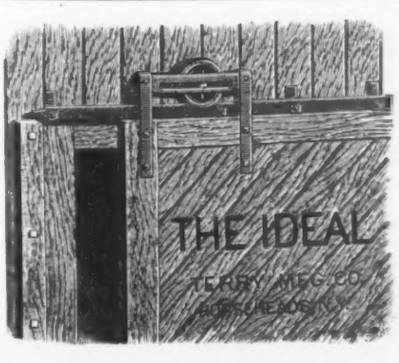

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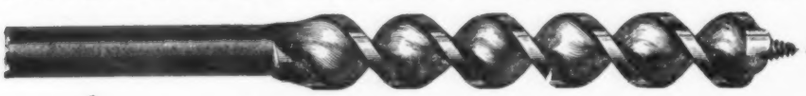

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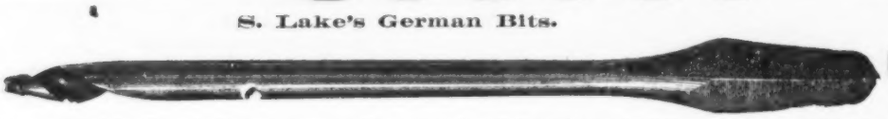

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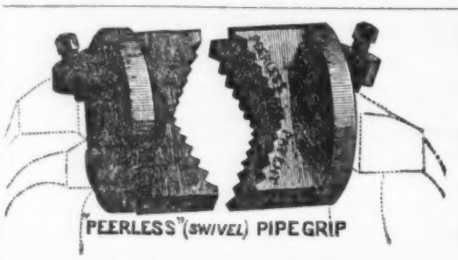

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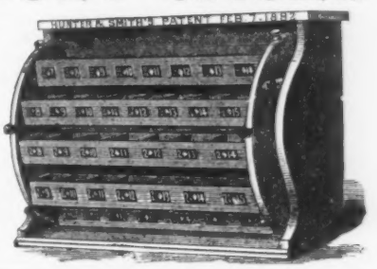

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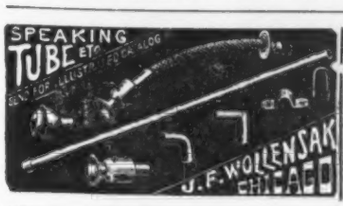

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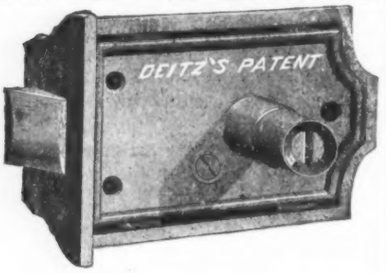

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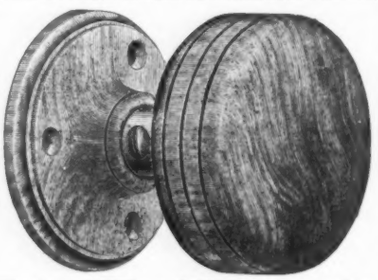

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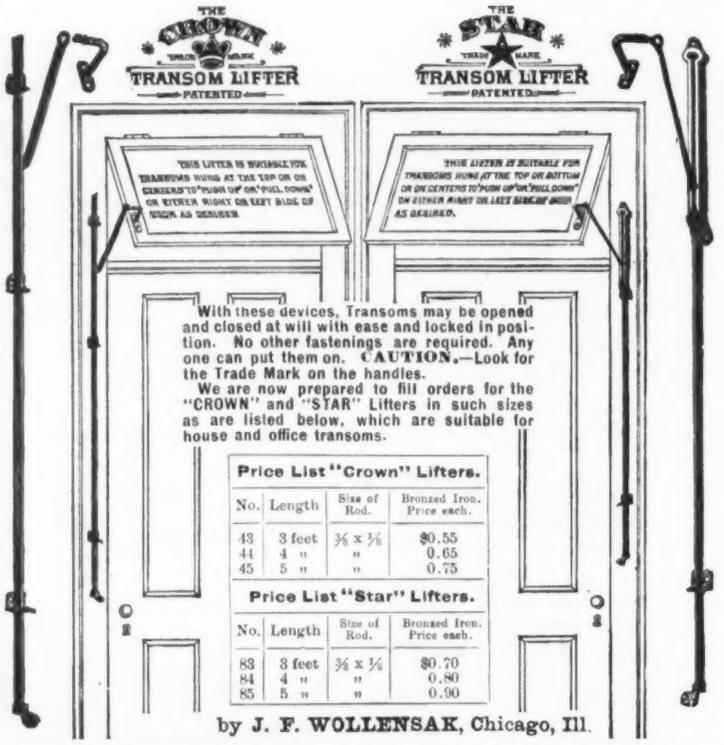

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8 inch, per doz	$4.20	14 inch, per doz	$6.00
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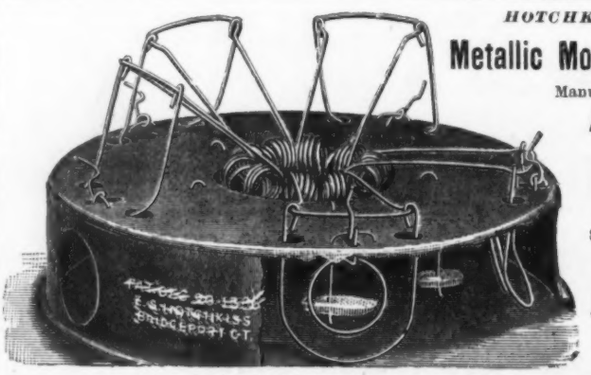

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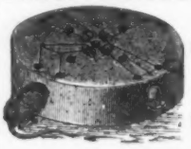

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This is one of the best selling locks in the market, and affords the dealer a large profit. It is thoroughly and strongly made—of the best material—very handsome in appearance, and every Lock is warranted. Orders solicited.

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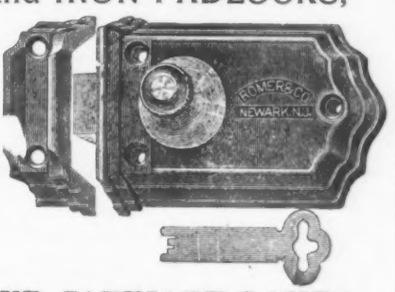

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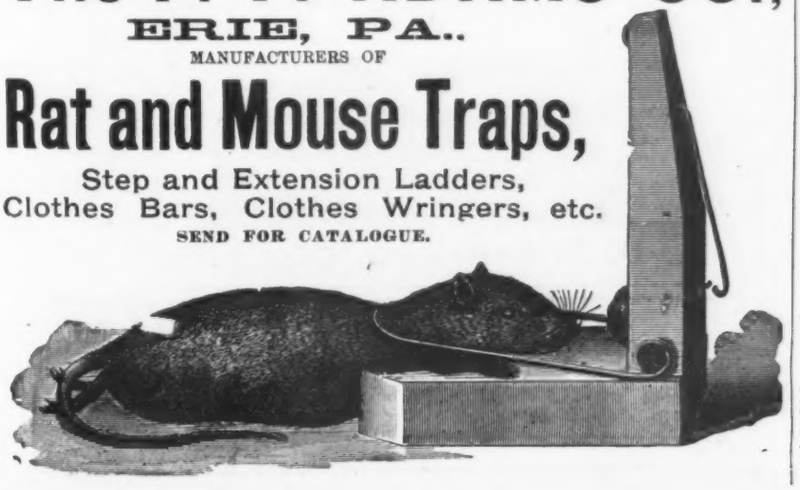

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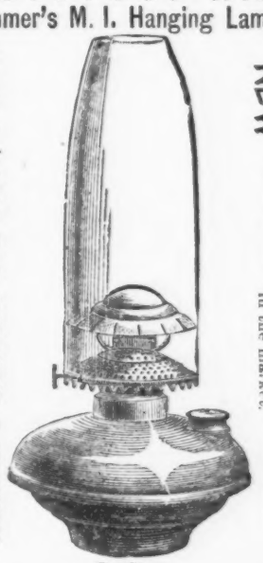

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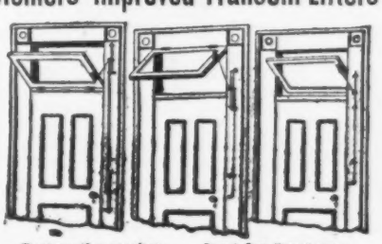

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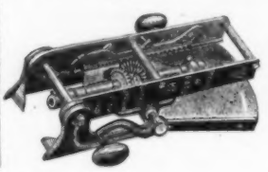

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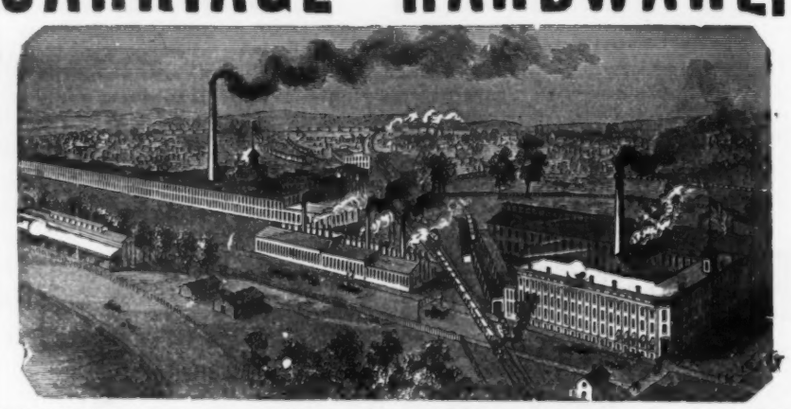

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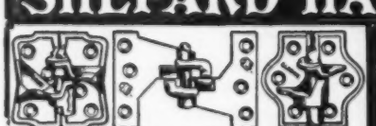

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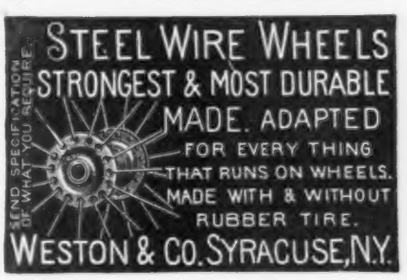

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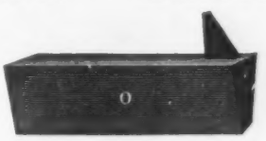

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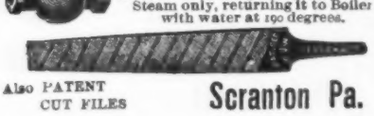

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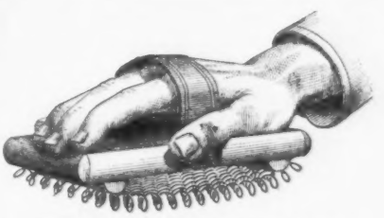

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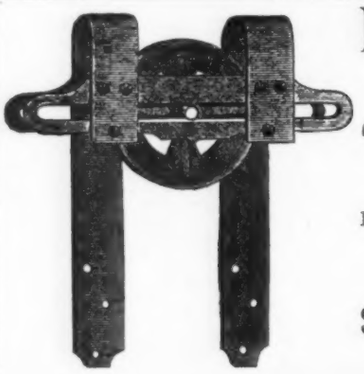

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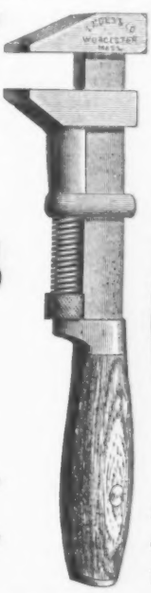

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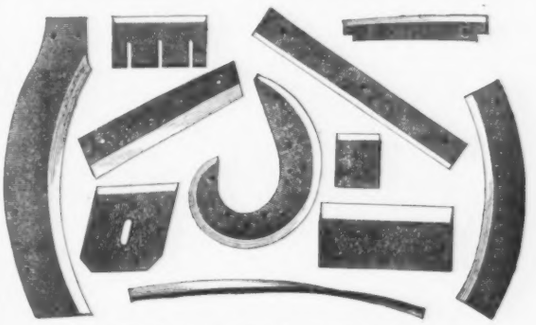

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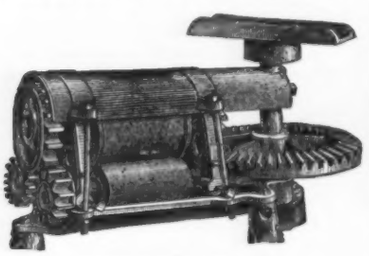

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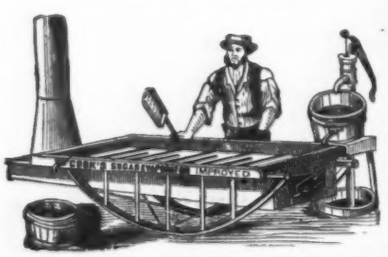

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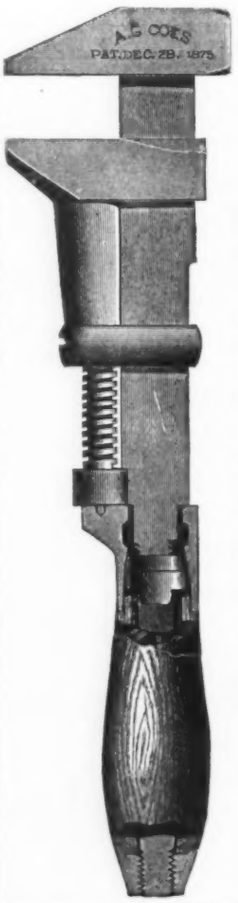

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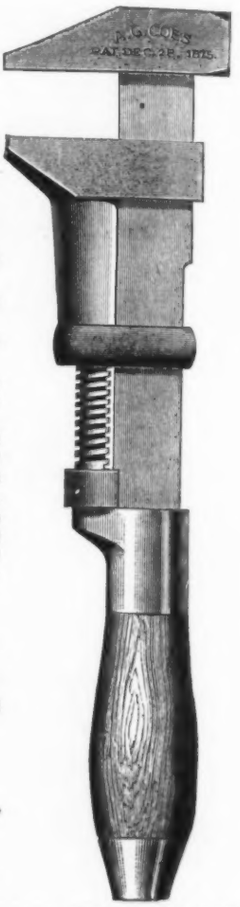

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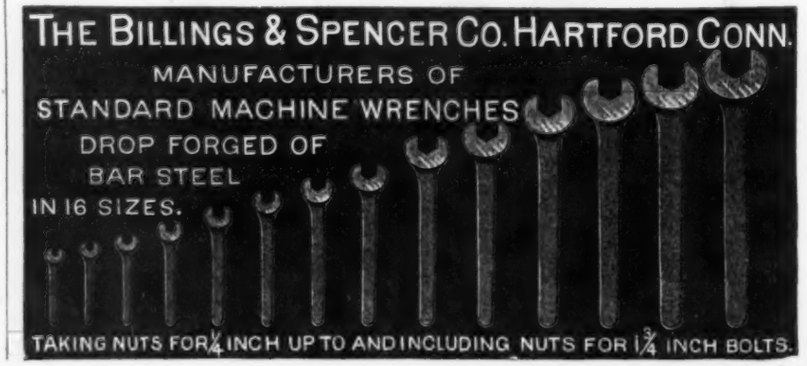

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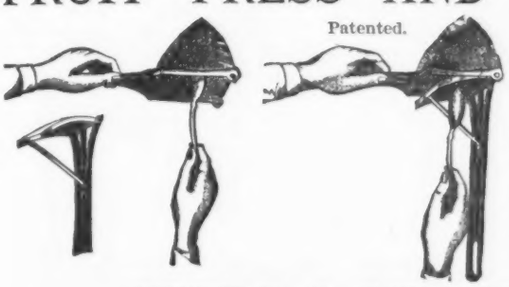

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Without the plunger it makes a splendid *dipper strainer* for dipping and straining out of the pot. It is also a good *gravey, &c., &c. strainer.* **It makes a great, great improvement.**

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It fits the Hand perfectly and adjusts itself to large and small hands.

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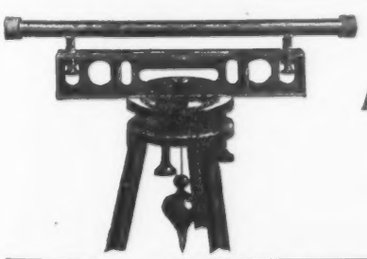

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THE DAY MANUF'G CO. *DETROIT, MICH. WINDSOR, ONTARIO*

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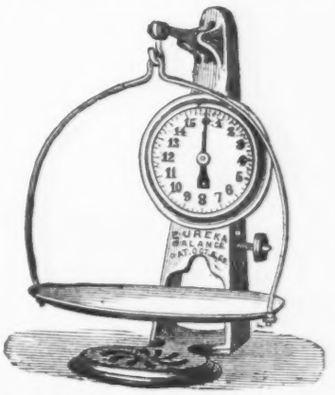

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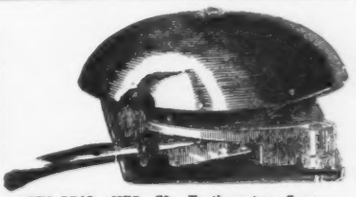

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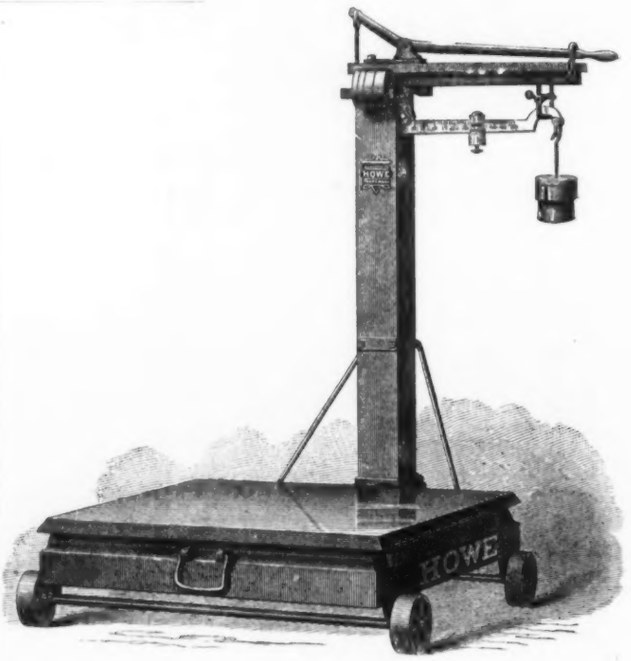

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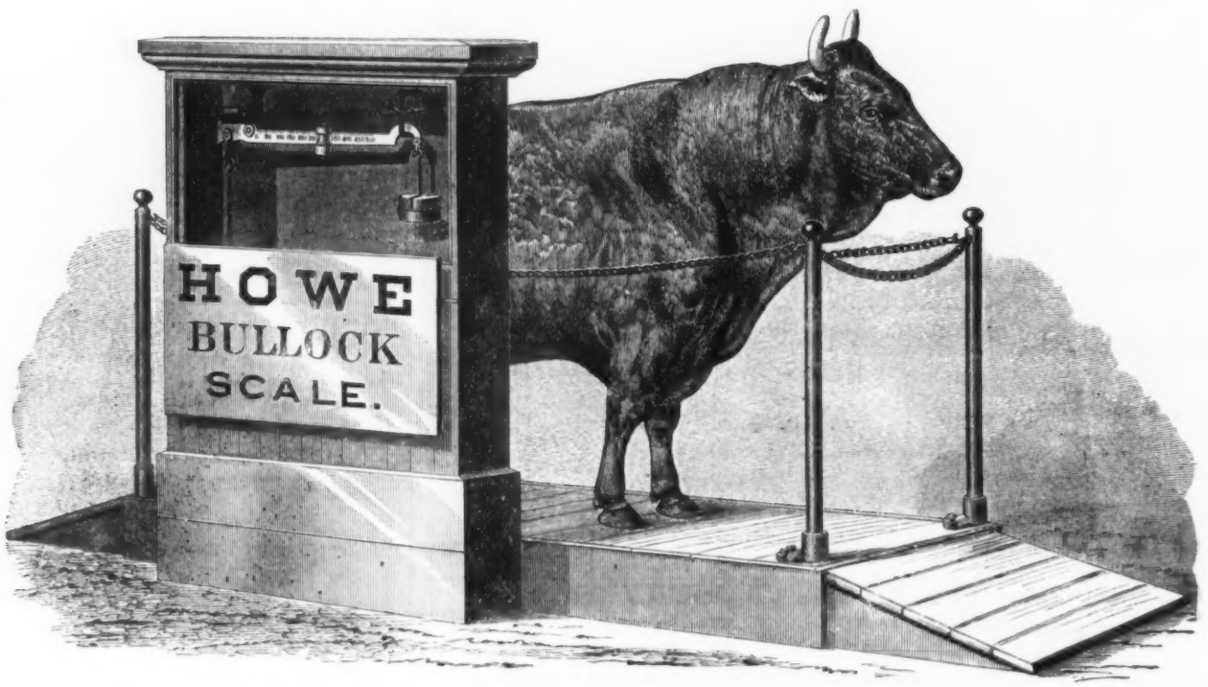

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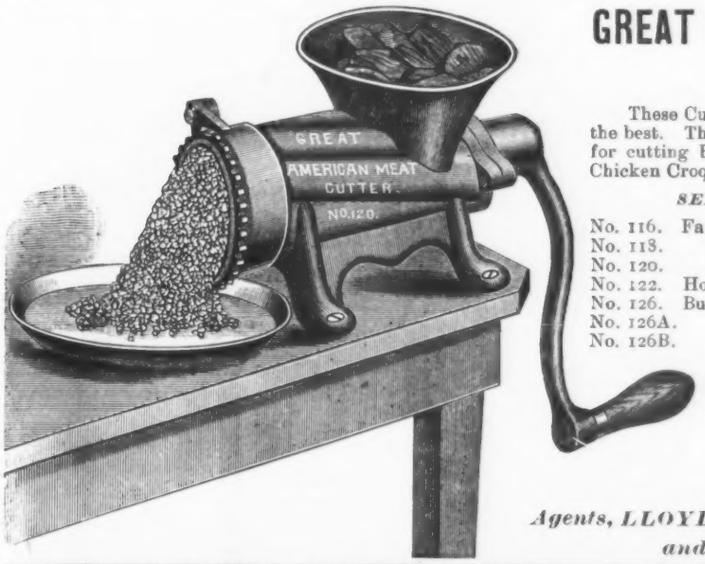

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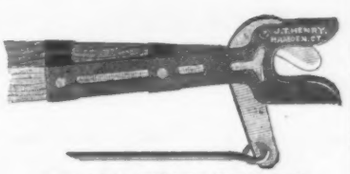

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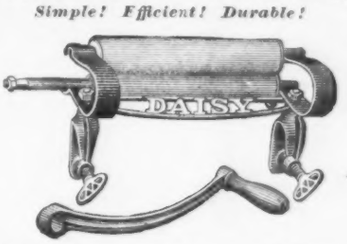

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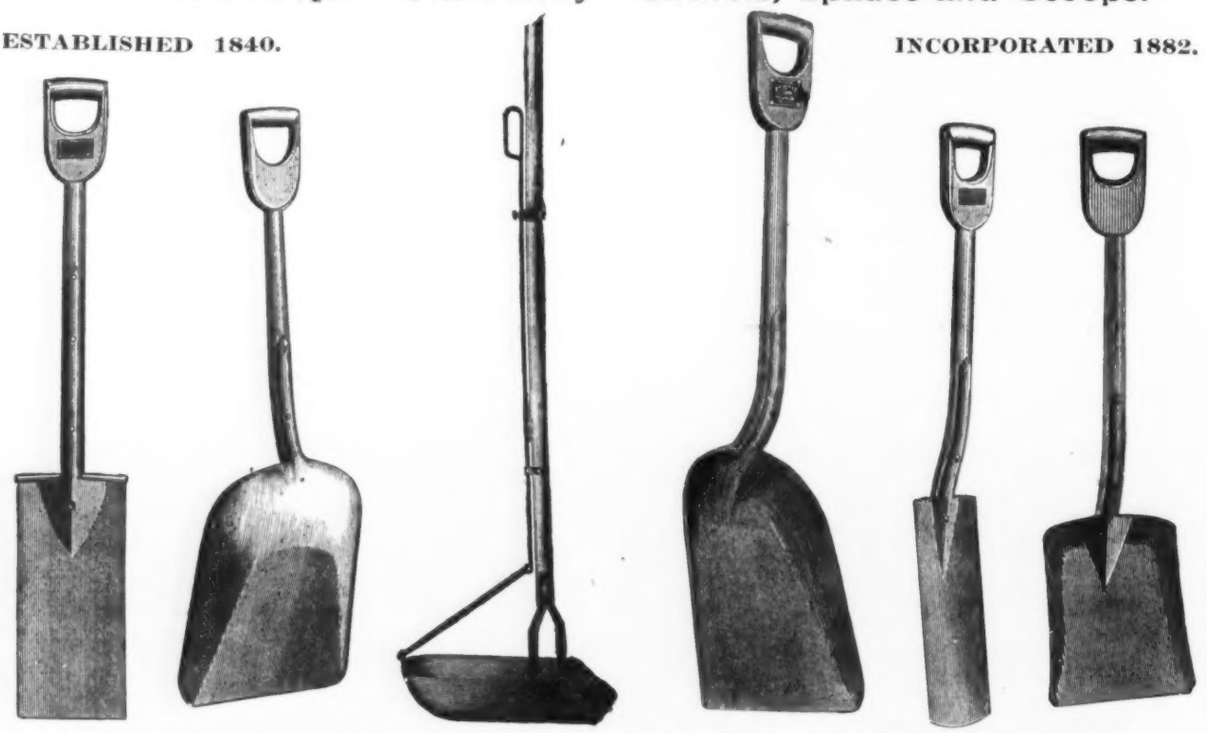

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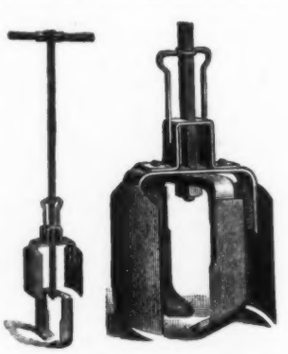

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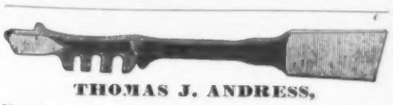

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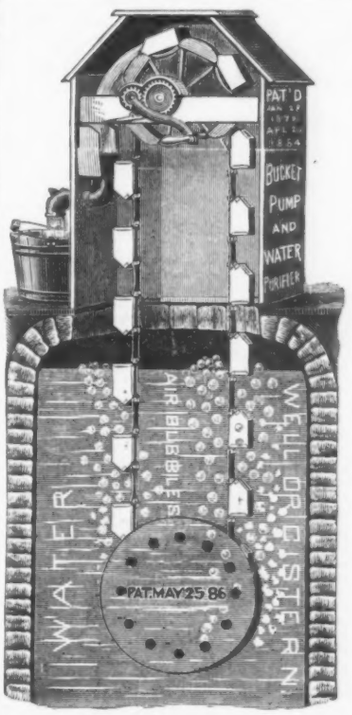

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¾ inch regular Hydrant Thread, or Pipe Thread to order) per doz. $7.50
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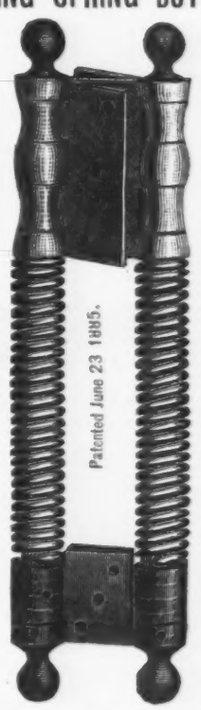

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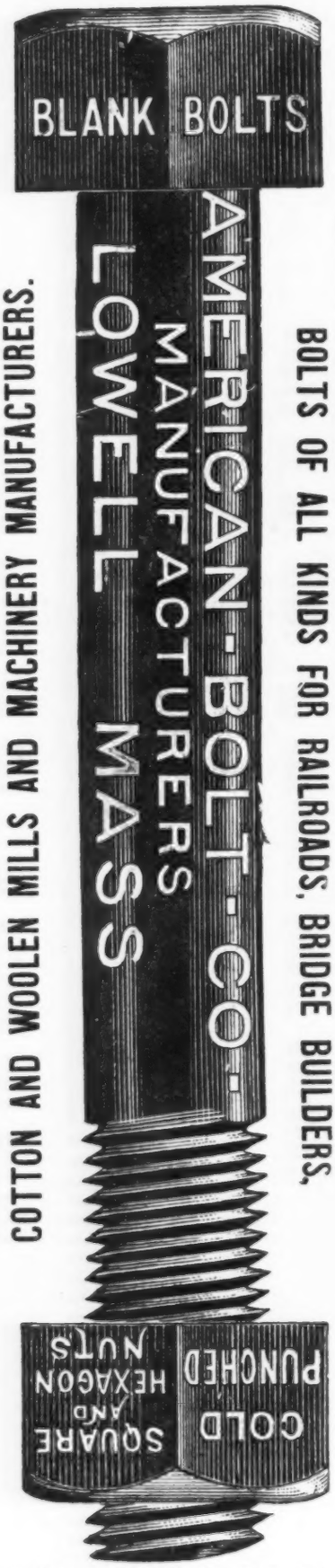

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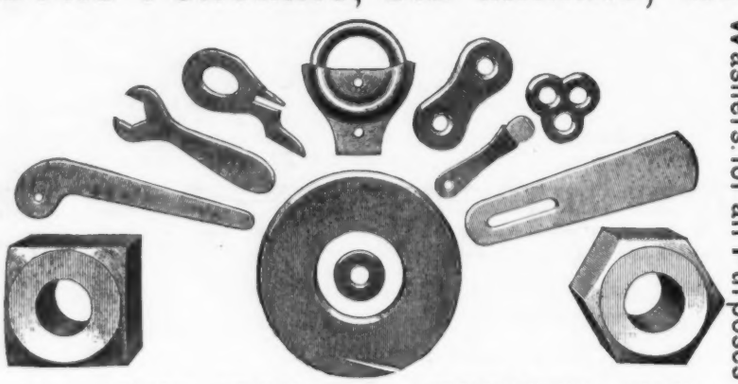

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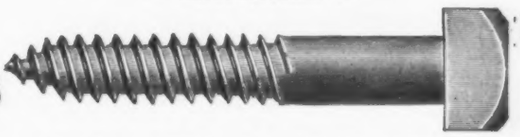

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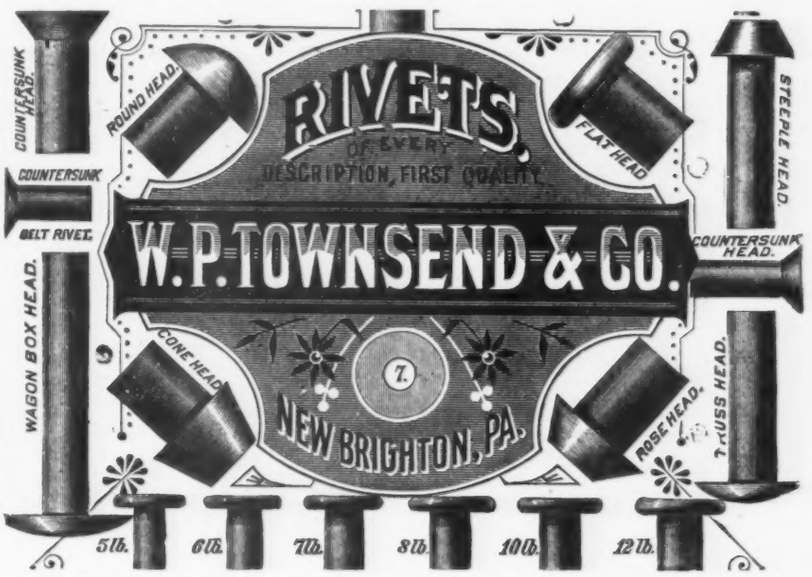

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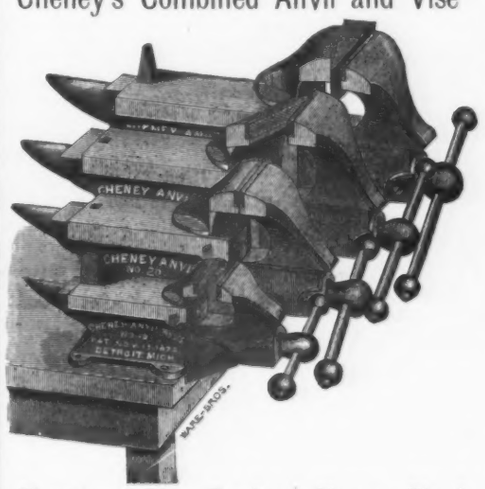

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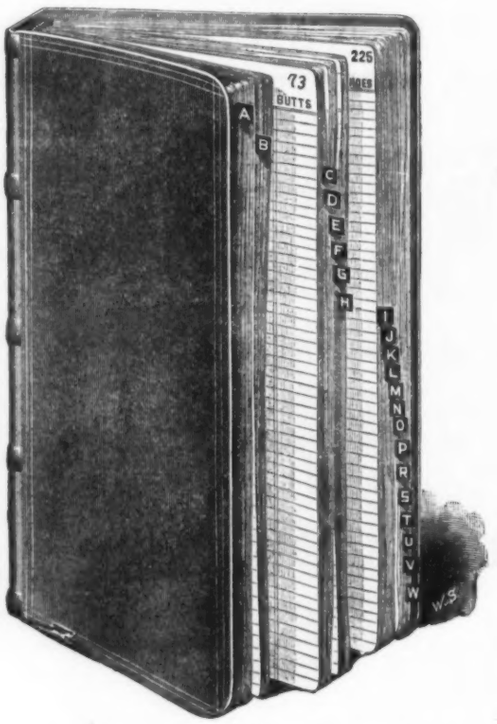

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Jacobus, W. H. & Co., N. Y.

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Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Vaughan & Bushnell Mfg. Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H., 116 Chambers, N. Y.
C. F. Guyon & Co., 97 & 99 Reade, N.Y.

Hardware Shelf Boxes.
Green S. H., 22 Park Place, N. Y
Jones, Jesse & Co., Philadelphia, Pa.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit Brace Co., Buffalo, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Greene Tweed & Co., N. Y
C. F. Guyon & Co., 97 & 99 Reade, N. Y.
Paine, Diehl & Co., Philadelphia, Pa.
Rex A. C. & Co., Philadelphia, Pa
Saxton E. R., Buffalo N. Y.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Carriers.
Myers F. E. & Bro., Ashland, O.

Hay Cutter.
The Wayne Works, Richmond, Ind.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hinges.
Union Mfg. Co., 103 Chambers, N. Y.

Hoes.
Bateman, E. S. & F., Spring Mills, N. J.

Hog Ringers.
Chambers, Bering & Quinlan Co., Decatur,

Hoisting Machines.
Box Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty, N. Y.
Energy Mfg. Co., Philadelphia, Pa.
Harrington E., Son & Co., Phila.
McCoy & Sanders, 26 Warren, N. Y.
Morse Williams & Co., Phila.
Sellers Wm. & Co., Phila. and N. Y.
Teal Hoist Co., Philadelphia.

Horse Nails. *Makers of.*
Essex Horse Nail Co., Essex, N. Y.
National Horse Nail Co. Vergennes.

Horse Shoes. *Makers of*
Phœnix Horse Shoe Co., Poughkeepsie, N. Y
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa.

Husking Pins.
E Blair, Bucyrus, O.

Hydrants, &c.
McLean John, N. Y.

Hydraulic Jacks.
Dudgeon Richard, N. Y.
Watson & Stillman, 204 E. 43d, N.Y.

Ice Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.

Indurated Fibre Ware
Union Indurated Fibre Co., N. Y

Injectors.
Aller, Amos, 109 Liberty, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron. *Manufacturers' Agents.*
Cox Justice, Jr., & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Hoffman J. W. & Co., Philadelphia.
Levis Henry & Co., Philadelphia.

Iron. *Manufacturers of.*
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, O.
Montour Iron & Steel Co., Danville.
Moorhead-McCleane Co., Pittsburgh, Pa
Passaic Rolling Mill Co., Paterson
Phœnix Iron Co., 410 Walnut, Phila.
Pottstown Iron Co, Pottstown, Pa.
Troy Steel and Iron Co., Troy, N. Y.
Whitney A. R. & Co., 58 Hudson, N.Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel Swedish.
Lewander & Co., Boston, Mass.
Lundberg Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philp C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Ettinger Edward J., Philadelphia, Pa.
Walbaum W. H. & Co., Philadelphia Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia.
Mohr J. J., 430 Walnut, Phila.
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila. Pa,
Hart, Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co., Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 190 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co., 94 to 97 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig, *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet. *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O.

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Mill-rs Falls Co., 91 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co. Newburg N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Mast, Foos & Co., Springfield, O

Lawn Sprinklers.
McGowan, John H. & Co., Cincinnati, O.

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. F., Athol, Mass.

Lightning Rods.
Munson Lightning Conductor Co., Indianapolis, Ind.

Locks and Knobs. *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co., Bridgeport.
Quackenbush Abram, New York.
Romer & Co., Newark, N. J.
Yale & Towne Mfg. Co., Stamford

Machinery.
Ajax John & Son, New Haven, Conn.
Barnes W. F. & John, Rockford, Ill
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow C. E., 45 Dey, N. Y.
Brettell & Wilson, Rochester, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Bullard E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank D. B., Providence, R. I.
Deering Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray's Ferry F'd'y & Boiler Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct.
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge, Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Nicholson & Waterman, Providence, R. I.
Pedrick & Ayer, Philadelphia, Pa.
Prybil P., 467 W. 40th, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers Wm. & Co., Phila.
Snell, Henry I., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. Fd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co. Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. & Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y. Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Match Safes.
Dangerfield, F. S., Auburn, N. Y.

Meat Choppers.
Enterprise Mfg. Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N. Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard, P. E., Scranton, Pa.
Leonard, P. E., Scranton, Pa.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Thomas, Dago J., 1 Broadway, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co., Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co., 139 Green'ch, N. Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Wash'ton N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y.

Norway Shapes. *Rollers of.*
Naylor & Co., 99 John, N. Y.
Rowland William & Harvey, Frankford Philadelphia.

Nuts, Bolts, &c. *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester.
Wilson J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn

Oil Stones.
A. F. Pike Mfg. Co., Pike Station, N. H.
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardner, Mass.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-Spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co., N.Y.
Smith, James & Co., 137 Market St. Philadelphia, Pa.

Padlocks.
Fraim, E. T., Lancaster, Pa.

Pails.
Brower, John, New York.

Paint.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Stocking E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.
Throop Perforating Co., Buffalo, N. Y.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Picture Cord.
Gilmore, E. W. & Co., No. Easton, Mass,

Pig Iron.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of.*
Donaldson Iron Co, Emaus, Pa.
Fox John, 100 Broadway, N. Y.
Morris, Tasker & Co., 224 South Third street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co. St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Polishing Machines.
Dietel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N. Y

Post Hole Diggers.
Lagonda Mfg. Co., Springfield, O.
Motherwell Iron and Steel Co., Logan, O.

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Powder.
King's Great Western Powder Co., Cincinnati, Ohio.

Power Hammers.
Belden H. A. & Co., Danbury, Conn.
Bradley & Co., Syracuse, N. Y.
Dienelt & Eisenhardt, Philadelphia
Duncan, W. P. & Co., Bellafonte, Pa.
Long & Allstatter Co., Hamilton, O.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Long & Allstatter Co., Hamilton, O.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa.

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown, Conn.

Presses, Power. *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Gou ds Mfg. Co., New York.
Hooker-Coivile Steam Pump Co., St. Louis, Mo.
Keystone Engine and Machine Wks, Phila., Pa
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Easthampton, Mass.

(See Alphabetical Index, Page 104.

Pumps, Force.
Myers P. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y.

Pumps. *Makers of.*
Bucket Pump and Water Purifier, Cincinnati, Ohio.
Columbiana Pump & Machine Co.
Douglas W. & B., Middletown, Conn.
Goulds Mfg. Co., 60 Barclay, N. Y.
Silver & Deming Mfg.Co., Salem, O.
Union Mfg. Co., 103 Chambers, N. Y.

Punches.
Fulton Iron & Eng. Wks. Detroit, Mich.

Punching and Shearing Presses.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown Pa.
Joliet Steel Co., 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y.
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Cowles Mfg. Co., Bridgeport, Ct.

Razors.
Dame, Stoddard & Kendall, Boston, Mass.
J. R. Torrey Razor Co., Worcester Mass.

Razor Strops.
Tower & Lamont, Rochester, N. Y.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia,

Refrigerator Trimmings.
Brainard & Co., 97 Chambers St., N. Y.

Registering Machines.
Ives, Geo. E., New Haven, Conn

Rivets.
Disosway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rock Drills.
Clayton Air Compressor Works, Brooklyn, N. Y., and Dey, N. Y.

Rolling Mill Machinery.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co., Pittsburgh, Pa.
Seaman, Steeth & Black, Pittsburgh.

Rope Snaps.
Pratt & Letchworth, Buffalo, N. Y.

Roofing.
Garry Iron Roofing Co., Cleveland, O.

Rules, *Manufacturers of.*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sample Racks.
Iowa Farming Tool Co., Ft. Madison, Iowa.

Sash Balances.
Caldwell, W. H., Rochester, N. Y.

Sash Cords and Chains.
Morton Thos., 65 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Whitney, D. J., 47 Warren, N. Y.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Claflin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers st., New York.
Ireland Mfg. Co., Cincinnati, O.
Ives H. B. & Co., New Haven, Conn.
Sise, Gibson & Co., N. Y.

Sash Pulleys.
Empire Portable Forge Co., Cohoes, N. Y.
Palmer Hardware Mfg. Co, Troy, N. Y.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury, Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Truax, Chauncey S., 64 College Place, N. Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls, N. Y

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons, Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Riehlé Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Gay & Parsons, Augusta, Me.
Ehrich Rdw. Mfg. Co., Plantsville, Conn.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S., 205 Quarry, Philadelphia
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls, N. Y
King, O'Connor & Co., Baltimore, Md.

Scythe Stones and Whetstones.
A. F. Pike Mfg. Co, Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 27 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Schollhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Shoe Brushes.
Thompson Mfg. Co., Lansingb'h, N. Y.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.
Rowlands Sons, T., Philadelphia, Pa.
Sanford Fork and Tool Co., Terre Haute, Ind.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown, Conn.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen 105 Walker, N. Y.
Wollensak, J. F., Chicago, Ill.

Sporting Goods.
Field, J. B. & Co., Detroit, Mich.
Shields, Jno. & Co., Brookline, Mass.

Spelter.
Manning & Squier 111 Liberty, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.

Spring Hinges.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
New Haven Staple Works, New Haven, Conn.

Strops.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon Richard, 24 Columbia, N. Y.
Duncan W. P. & Co., Bellefonte Pa.

Steam Heating.
Broomell & Sanas, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colvile Steam Pump Co., St. Louis, Mo.
McGowan John H. & Co., Cincinnati.
Norwalk Iron Wks.Co., 80. Norwalk.

Steam Traps.
Aller Amos, 109 Liberty, N. Y.

Steel Figures and Alphabets.
Stutsman J. M., 181 William, N. Y.

Steel Importers.
Abbott Jere & Co., N. Y. & Boston.
Hobson Francis & Son, 97 John, N. Y.
Jessop Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West, N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones B. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Frankford Steel Co., Philadelphia
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller, Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss F. W., 83 John, N. Y.
Naylor & Co., 99 John, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N. Y.
Wardlow S. & C., Sheffield, Eng
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beavor-Webb, J., 145 Broadway.
Hicks & Dickey, Philadelphia, Pa.

Steel Nails.
Bellaire Nail Works, Bellaire, O to.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs, *Manufacturers.*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N. Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng. 91 John, N. Y.
Leng John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops.
J. R. Torrey & Co. Worcester, Mass.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Trurant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W., Springfield, Mass.
Ellrich Hdw. Mf. Co., Plantaville, Ct.
Fulton Iron and Engine Works, Detroit, Mich.
Hoague, J. H & Co., Chicopee, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Transom Lifters.
Reiher F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Riehle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co., 19 Murray, N. Y.

Tubes, Steel.
Leng John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Type Writers.
Hammond Type Writer Co., 75-77 Nassau, N. Y.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Leng John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Velocipedes.
Chieftain Hay Rake Co., Canton, O.

Vises.
Howard Iron Works, Buffalo, N. Y
New London Vise Works, New London, Conn.
Prentiss Vise Co., 23 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers.
Lanman, E. B., Columbus, O.
Mason Iron Co., Philadelphia, Pa.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York.

Water Motors.
Tuerk Water Meter Co., Syracuse, N. Y

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

Wheelbarrows.
Bryan Mfg. Co., Bryan, Ohio.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.

Wheels.
L. A. Weston & Co., Syracuse, N. Y

Window Cleaners.
Bosley, D. W. & Co., Chicago.

Window Screens.
Darby, Edw. & Sons, Philada., Pa.
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren St., N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd, Pittsburgh, Pa
Howard & Morse, 45 Fulton, N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co., Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg Co., Worcester.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass
Cronk Hanger Co., Elmira, N. Y.
Darby Edward & Sons, Philadelphia.
Estey W. S., 71 Fulton, N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse, 45 Fulton, N. Y.

Wire Goods, *Manufacturers of.*
Brooks M. S & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville
Howard & Morse, 45 Fulton, N. Y.
Knapp & Hague, New York.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
Adt John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Sweetser, W. A., Brockton, Mass.

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Field A. & Sons, Taunton, Mass.
Hartman Steel Co. Ltd., Pittsburgh Pa.
Phillips E. & Sons, South Hanover
Philips, Townsend & Co., Phil., Pa
Pittsburgh Wire Nail Co., Pittsburgh Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
Wire Goods Co., Worcester.
Trufant W. E., Whitman, Mass.
Whitney A. R. & Co., New York City.

Wire Rods, Steel.
Whitney A. R. & Co., N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St Louis, Mo.
Upson, Walton & Co., Cleveland, O.
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Malin & Co., Cleveland, O.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
Udell Woodenware Works, Idianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Fall N. Y.

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Bemis & Call Hardware & Tool Co Springfield, Mass.
Billings, Spencer & Co., Hartford Conn.
Coes Wrench Co, Worcester, Mass.
Utility Wrench Co, N. Y.
Williams, J. H., Brooklyn, N. Y.

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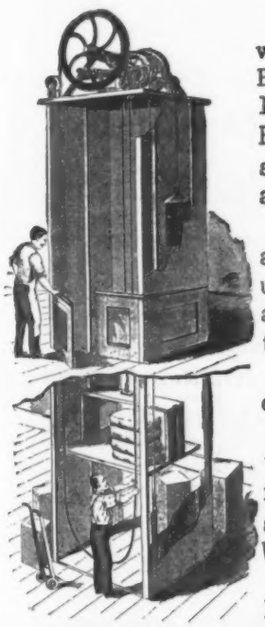

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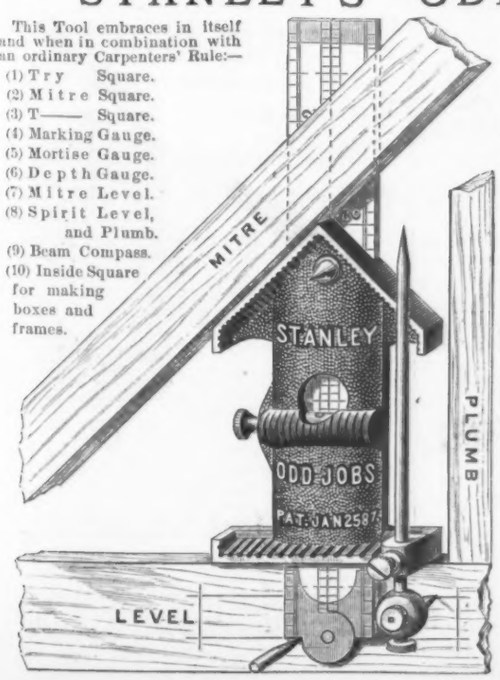

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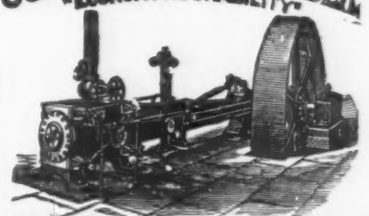

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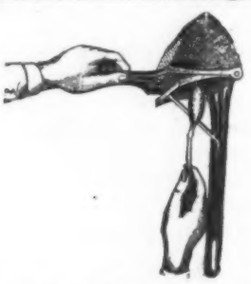

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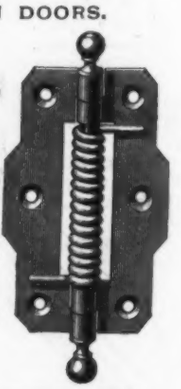

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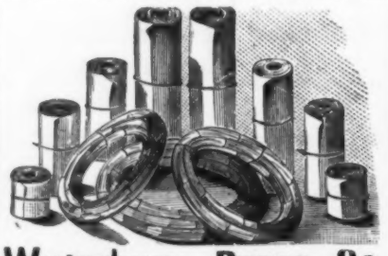

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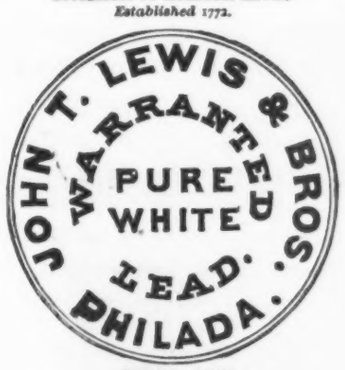

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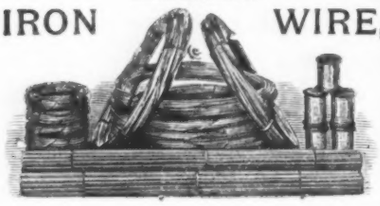

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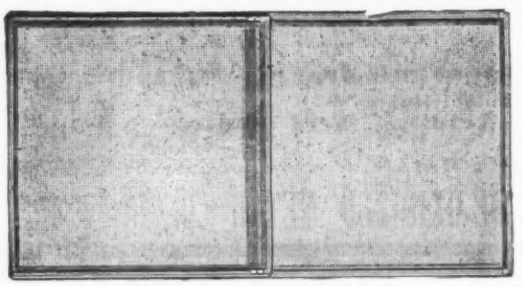

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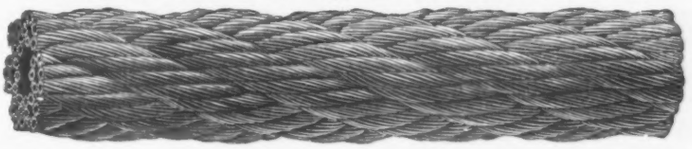
Wire Rope  and Cable.

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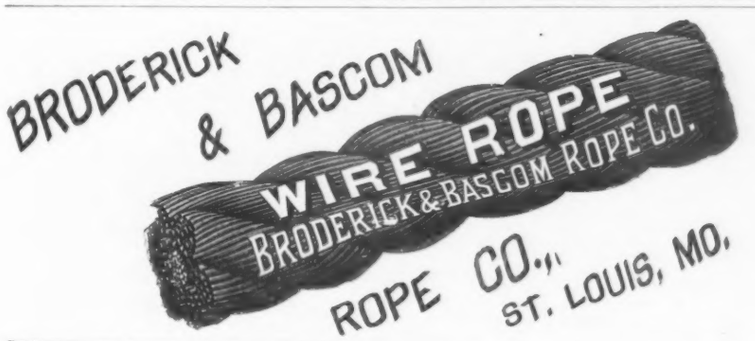

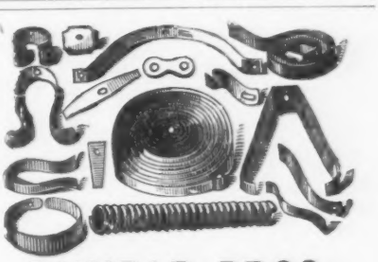

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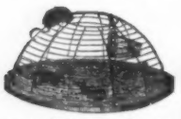

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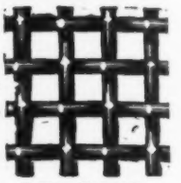

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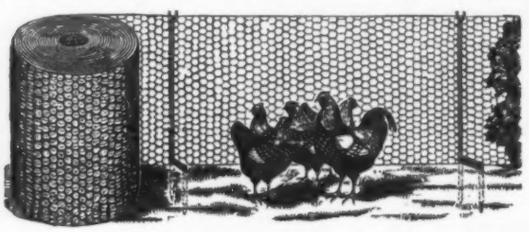

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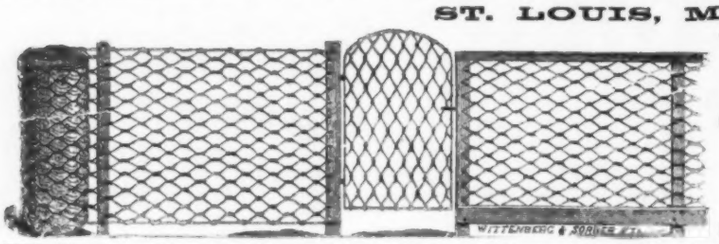

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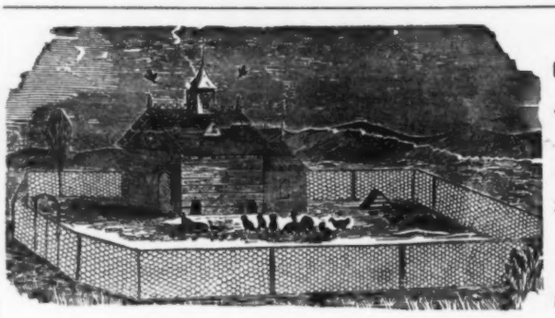

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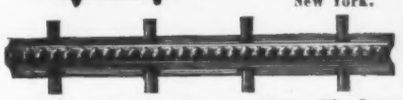

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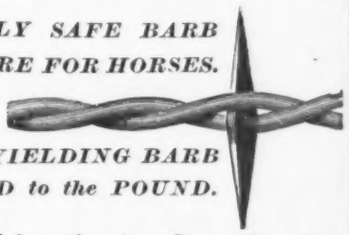

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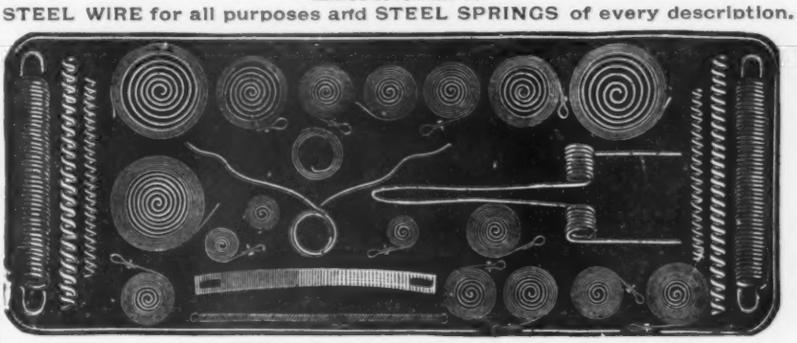

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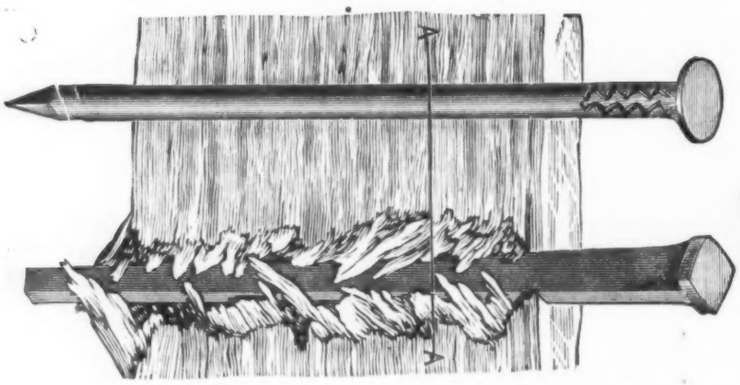

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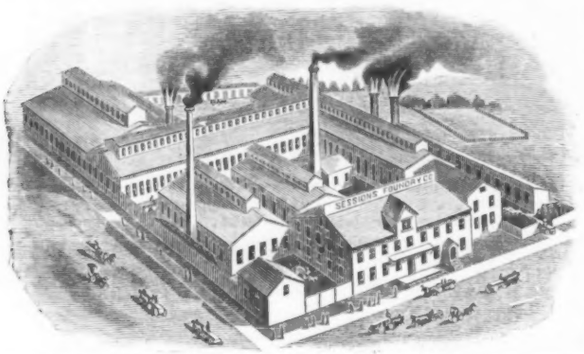

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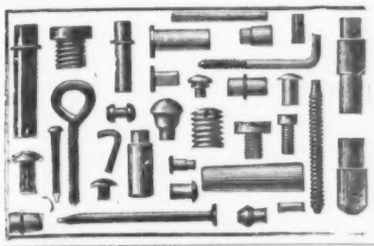

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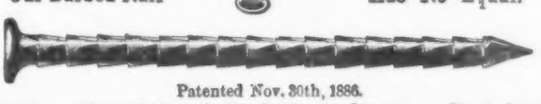

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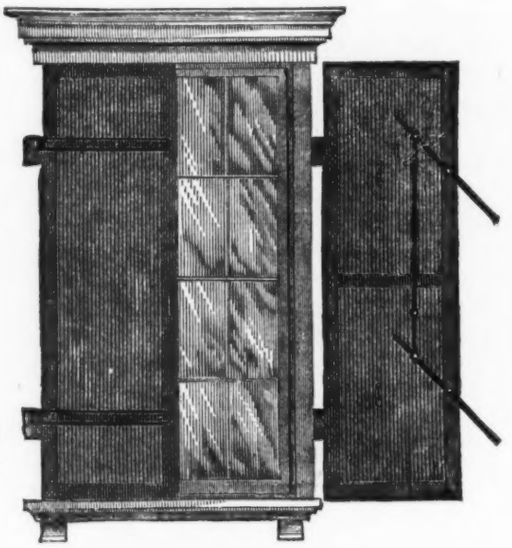

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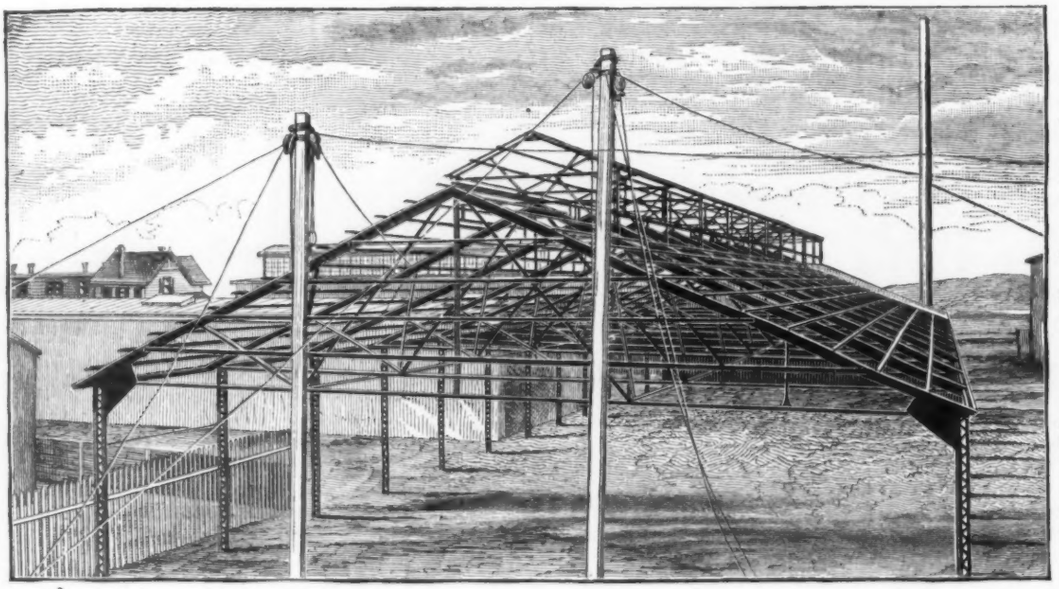

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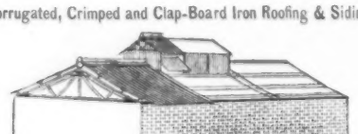

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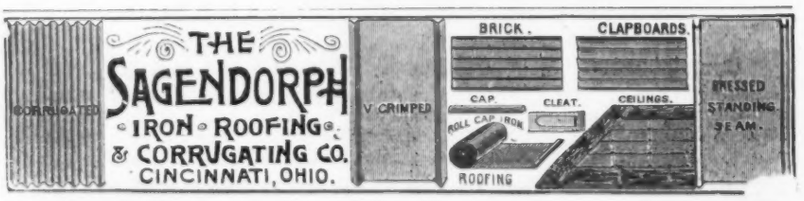

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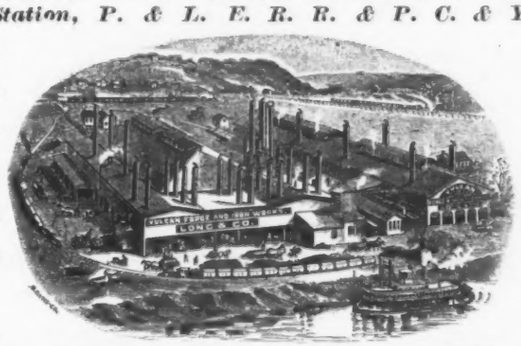

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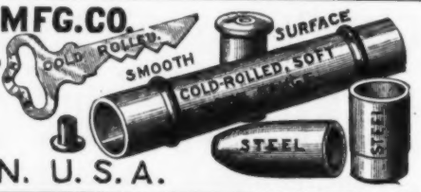

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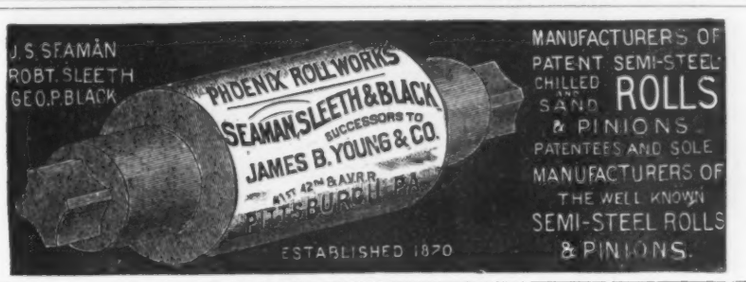

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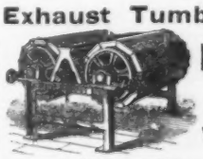

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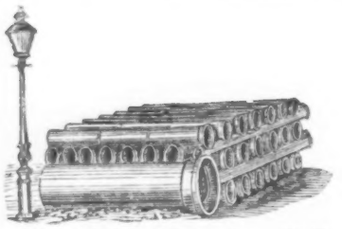

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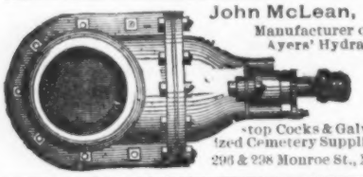

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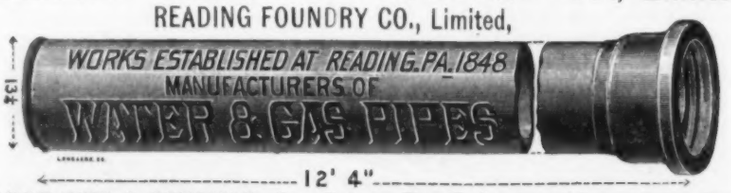

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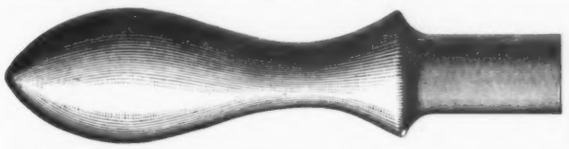

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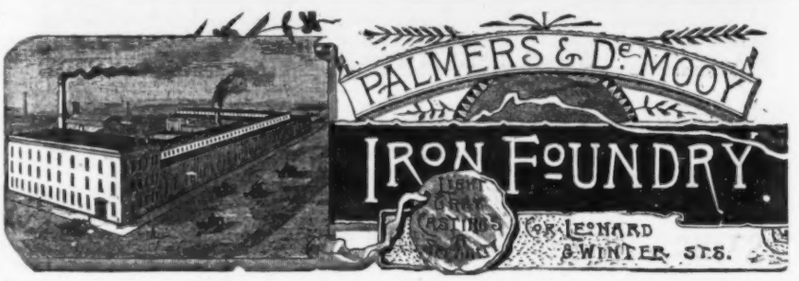

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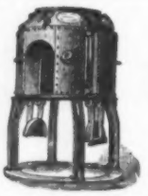

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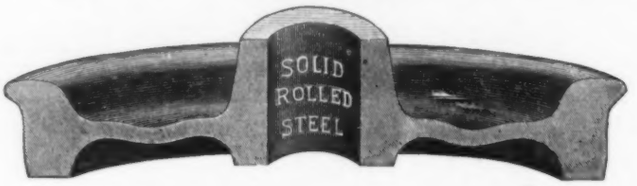

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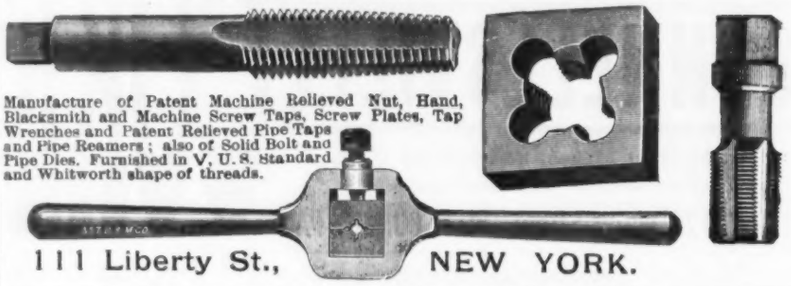

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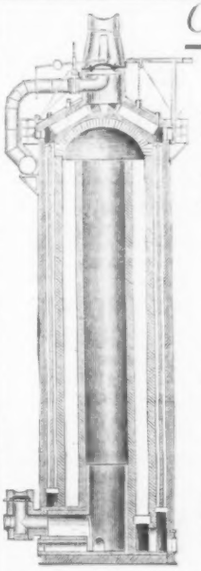

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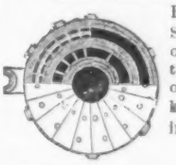

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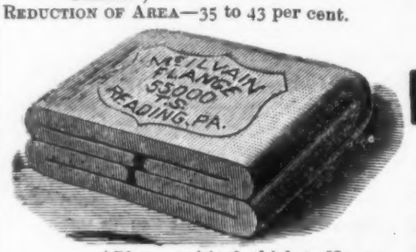

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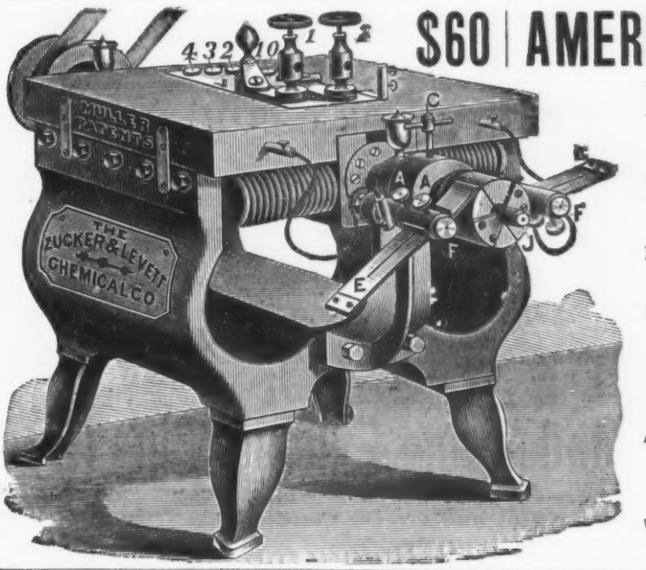

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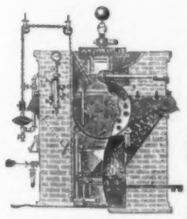

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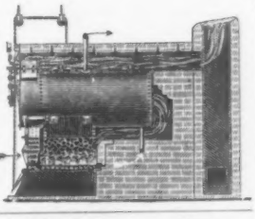

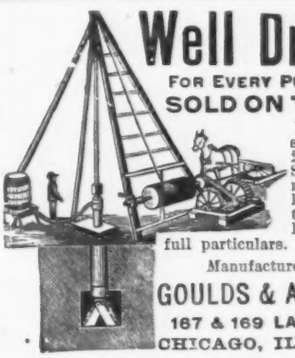

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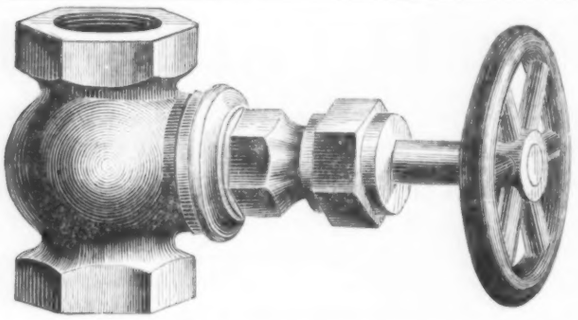

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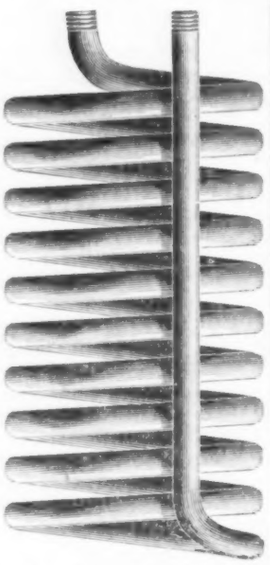

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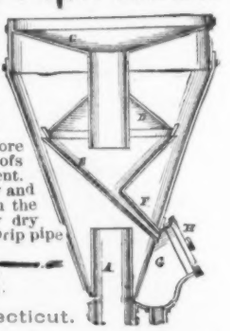

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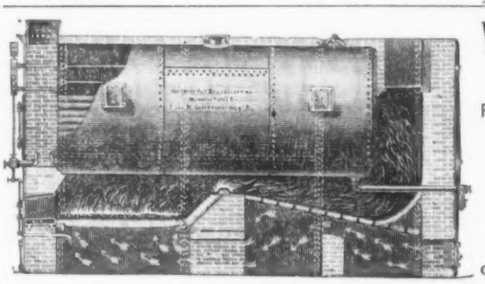

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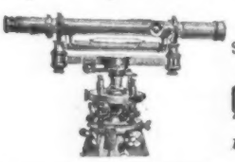

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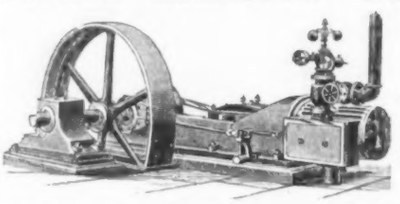

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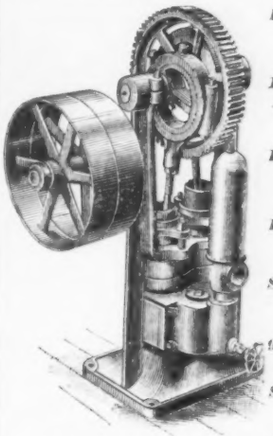

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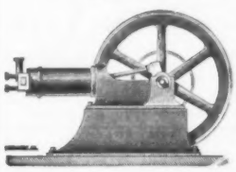

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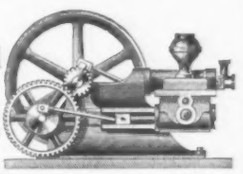

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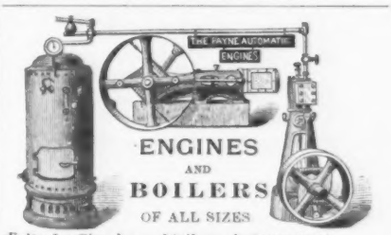

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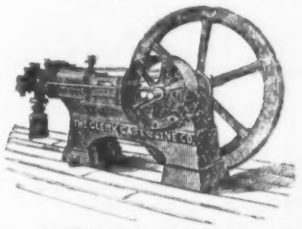

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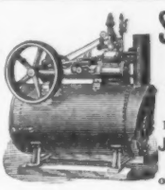

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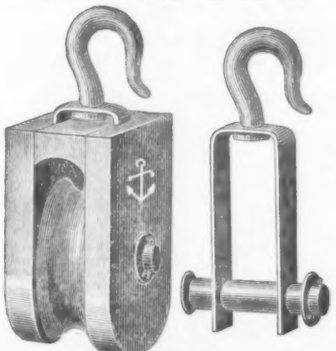

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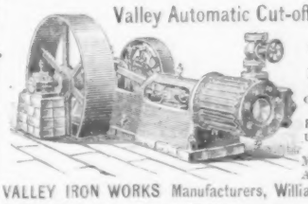

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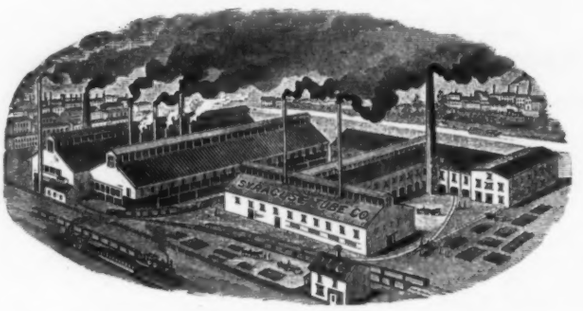

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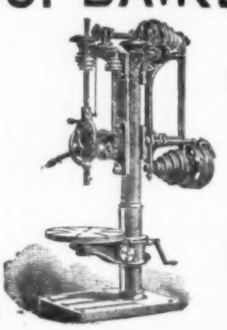

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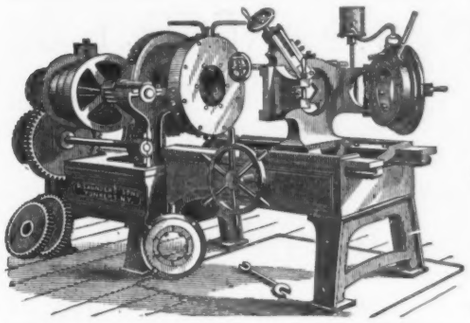

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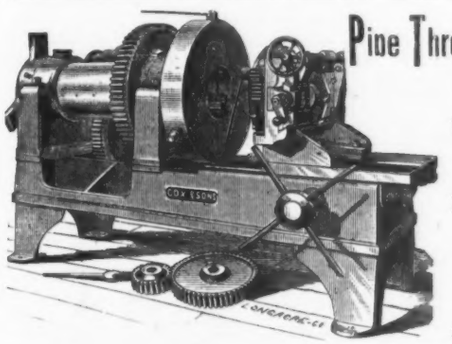

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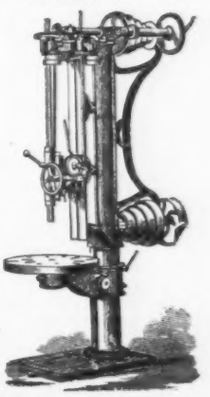

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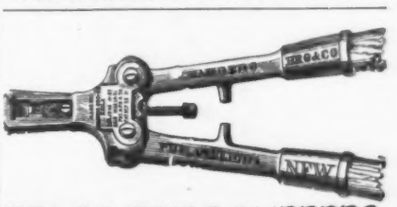

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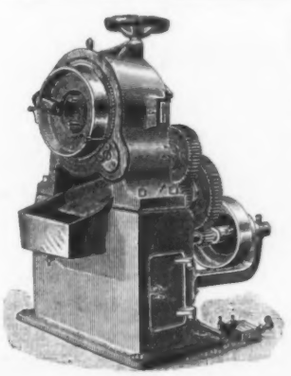

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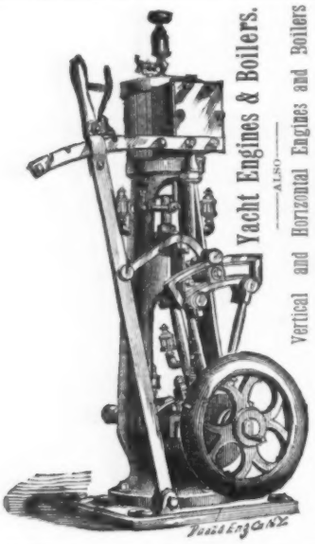

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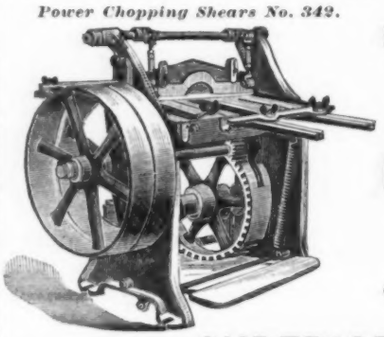

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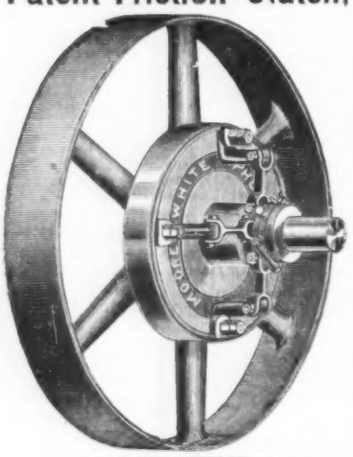

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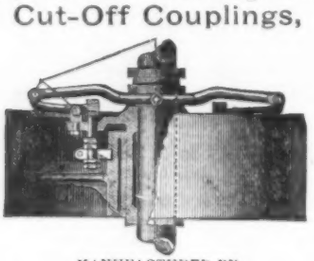

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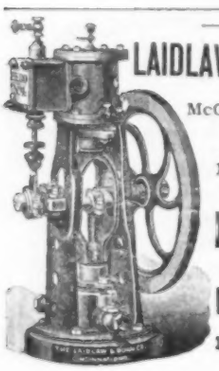

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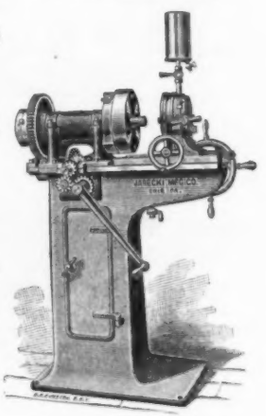

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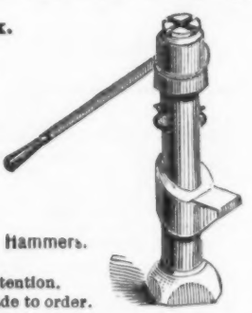

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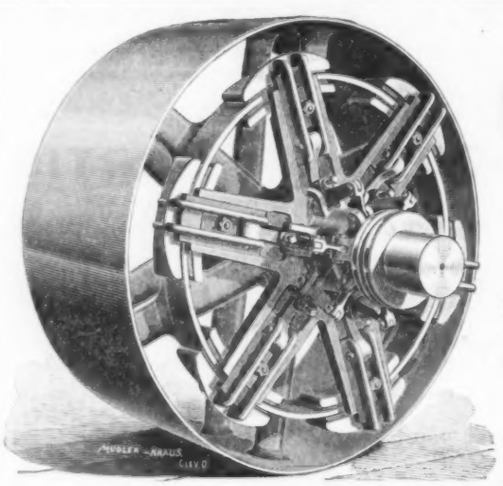

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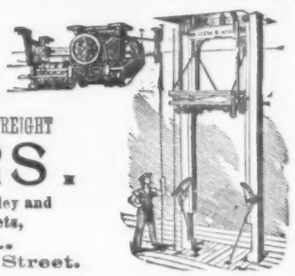

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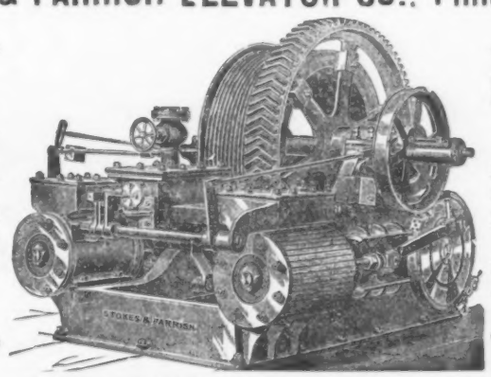

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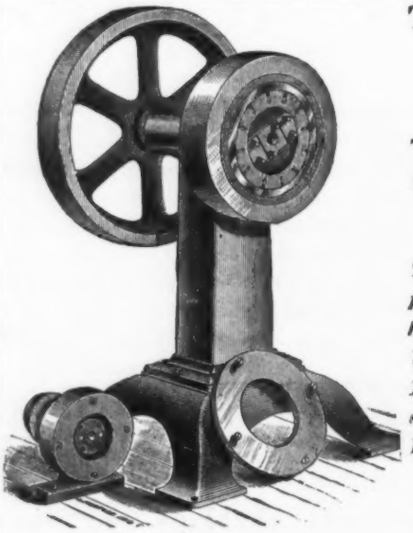

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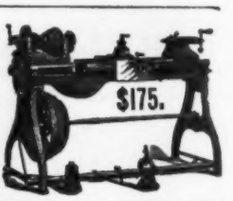

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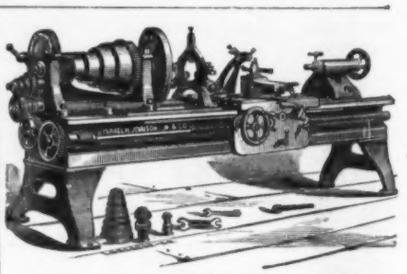

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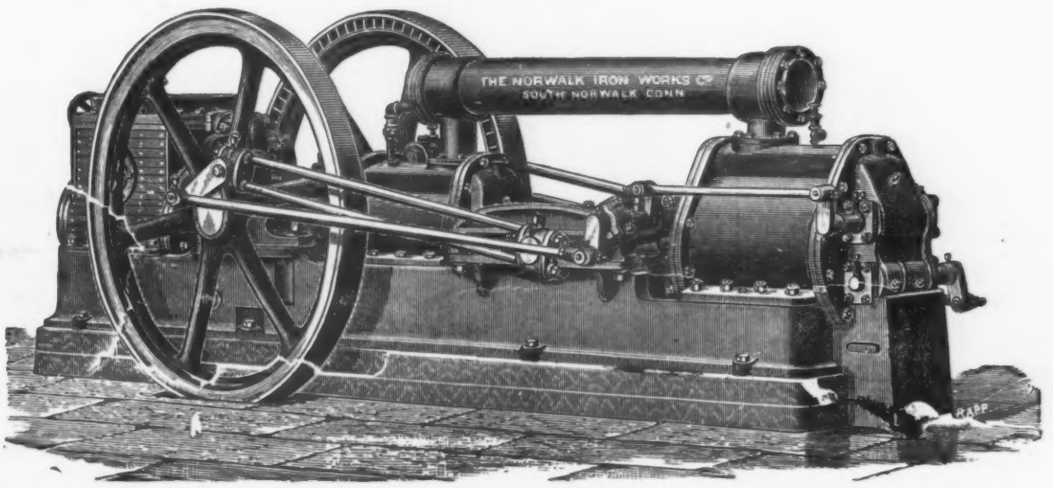

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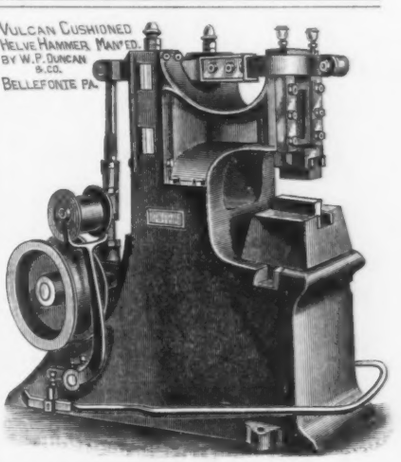

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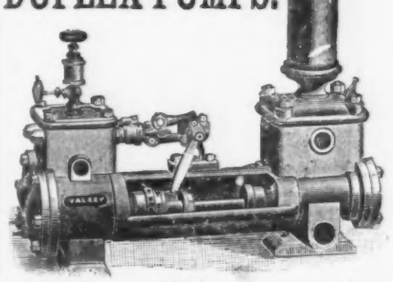

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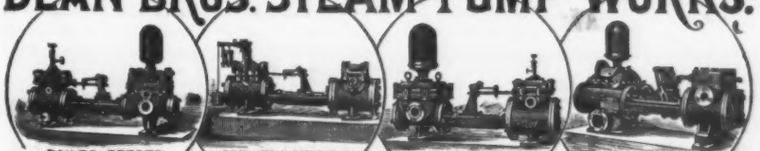

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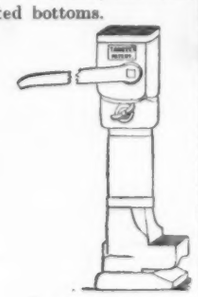

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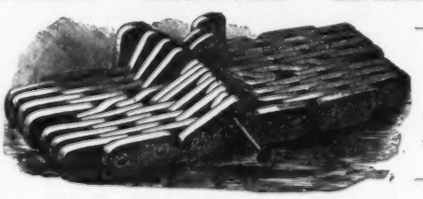

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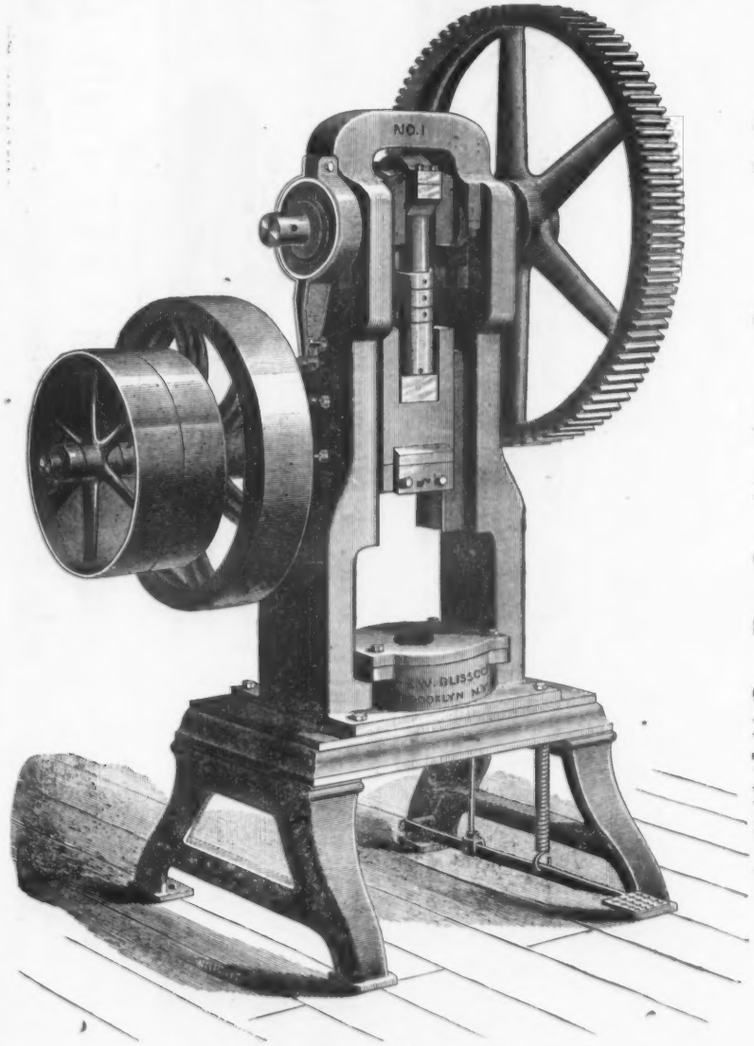

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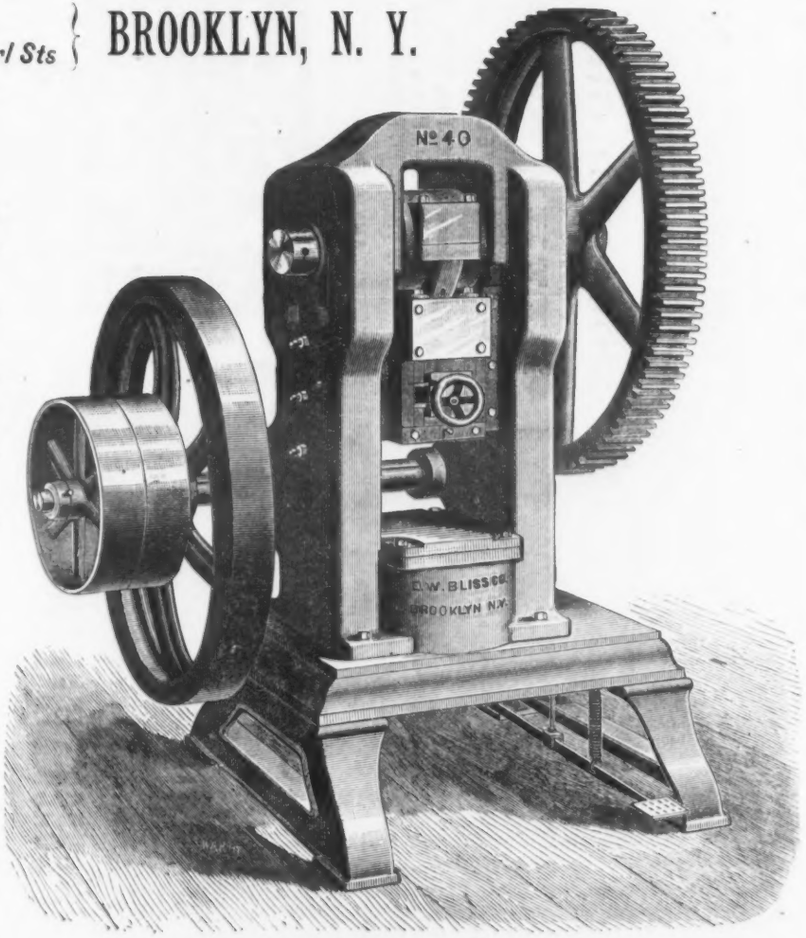

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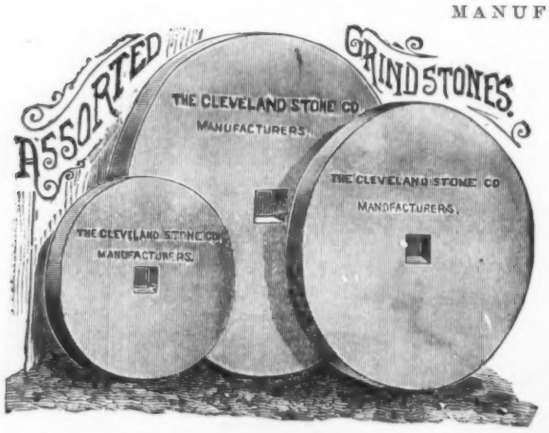

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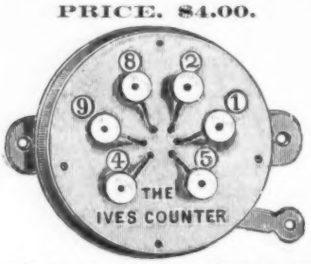

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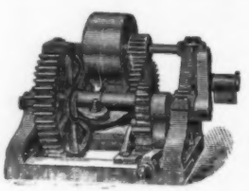

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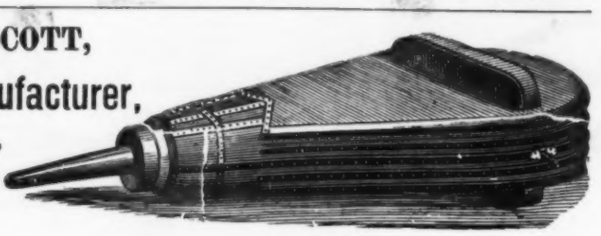

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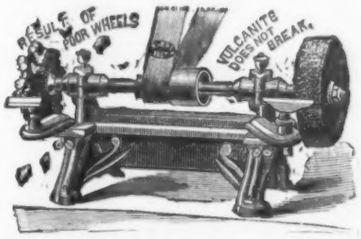

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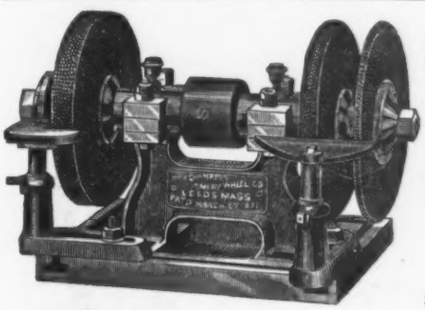

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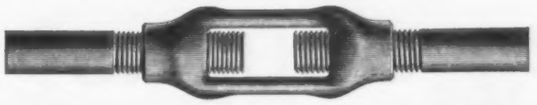
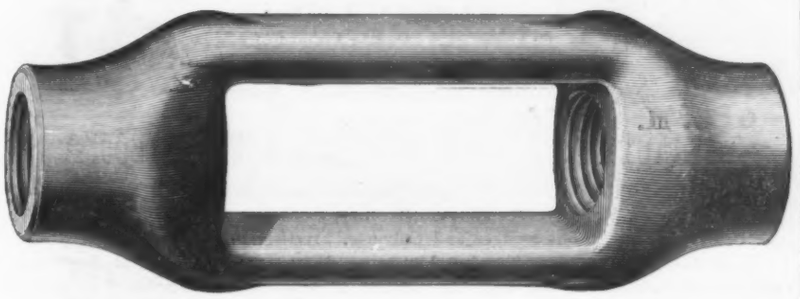
BEST.  CHEAPEST



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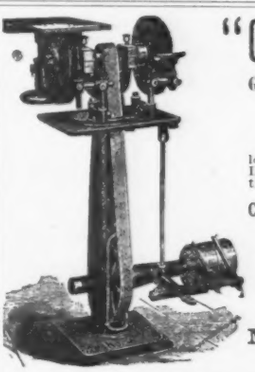

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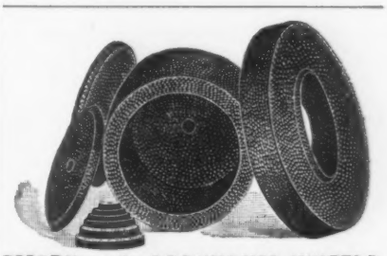

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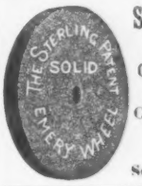

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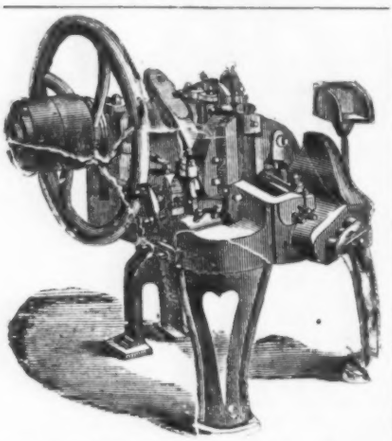

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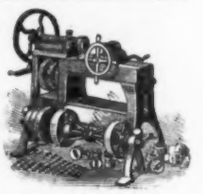

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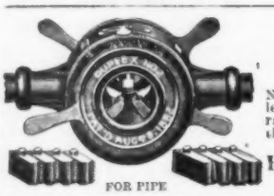

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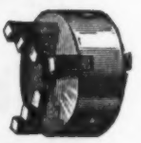

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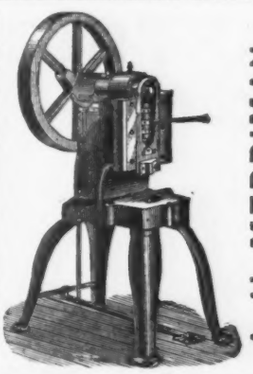

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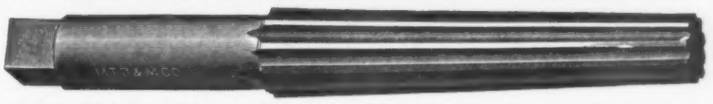

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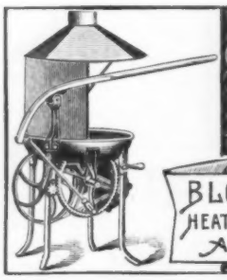

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1 25 x 16 New Haven Lathe. Good order.
1 36 x 9 New Haven Lathe. Good order.
1 36 x 20 Engine Lathe. Good order.
1 78 x 14 Engine Lathe. Good order.
1 78-in. x 16 ft. South Boston Co.'s Lathe. Second hand. Good order.
1 52-in. x 16 ft. Bement Engine Lathe. Second hand Good order.
1 54-in. x 14 ft. Reese Engine Lathe, raised to swing 72 inches. Second hand. Good order.
1 22-in. x 12 ft. Wolcott Lathe. Second-hand. Good order.

PLANERS.—New.

1 20 x 20 x 4 Williams Planer.
1 24 x 24 x 6 Pease Planer
1 30 x 30 x 8 Pease Planer

PLANERS.—Second hand.

1 16 x 16 x 3 ft. New Haven. Good order.
1 24 x 24 x 5½ New Haven. Good order.
1 24 x 24 x 7 New Haven. Good order.
2 26 x 26 x 6 Bretteli. Good order.
1 30 x 30 x 8 Whitcomb. Good order.
1 36 x 36 x 9 Stevens. Good order.
1 36 x 36 x 13 Stevens. Good order.
1 56 x 56 x 10 Bement Planer, double head. Second-hand. Good order.

DRILL PRESSES.

1 20-inch Lodge, Davis & Co. Lever Drill. New.
1 20-inch Lodge, Davis & Co. Wheel & Lever Drill. New
1 Lodge, Davis & Co. 25, 28, 32 & 40 B. G., P. F. Drill. New.
1 25-inch Prentiss Drill. New.
1 20-inch Bickford Drill. Second-hand. Good order.
1 24 inch Bickford Drill. Second-hand. Good order.
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Post Drills, all sizes. New.
2 18-inch Drills, Barnes. Second-hand. Good order.
1 20-inch Sliding head, Blaisdell. Second-hand. Good order.

MISCELLANEOUS.

1 No. 12 Wells Bolt Cutter. New.
1 10-inch B. & P. Shaper. New.
1 No. 1 Brown & Sharpe Miller. New.
1 No 4 Garvin Miller. Second-hand. Good order.
1 Lincoln Miller. Second-hand. Good order.
1 each 15 & 20-inch Jungst Shapers. New.
1 Foot-power Hammer. New.
1 Large Valve Miller. New.
1 Slab Miller. Second-hand. Good as new.
1 Water Grinder. Second-hand. Good as new.
1 Pulley Balancing Machine. New.
Grinders, all sizes. New.
1 10-inch Wilmorth Slotter. Second-hand. Good order.
1 10-inch Slotter. Second-hand. Good order.
1 Punch (Roach), ¾ hole in ¾ iron.
1 40-lb. Bradley Hammer. Good as new.
1 26-in. Lodge, Barker & Co Shaper. Second-hand. Good order.
7-ft. Bending Rolls. Second-hand Good order.
8 ft. Bending Rolls. Second-hand. Good order.
6 ft. Bending Rolls. Second-hand. Good order.
1 Punch, Roach. ¾ in. in ¾ iron. Second-hand. Good order.

☞Write for Prices. It will pay you.

LODGE, DAVIS & CO.,
Cincinnati, Ohio,

BARGAINS.

1 set Boiler Maker's Rolls, 8 ft. 3 in.
1 set Boiler Maker's Rolls, 7 ft.
1 16 x 36 Horizontal Engine. Good order.
1 16 x 24 Horizontal Engine. New.
1 12½ x 24 Horizontal Engine. New.
1 11 x 18 Horizontal Engine. New.
86 Engines, Horizontal and Vertical, new and second hand, 4 in to 10 in. cylinder.
1 50 in. x 12 ft. Hor. Tubular Boiler. Good order.
1 44 in. x 12 ft. Hor. Tubular Boiler. Good order.
2 42 in. x 12 ft. Hor. Tubular Boilers. New.
Vertical Boilers, new and second hand, 3 to 40 horse. Large stock.
Lathes and Drill Presses, new and second hand.
3 Boiler Maker's Punches. Capacity, ¾ hole to 1¼ hole in 1 in. iron.
1 Bevel Shear for Boiler Maker. New.
1 Alligator Shear for Boiler Maker.
Steam Pumps, all sizes.
1 24 in. x 8 ft. Engine Lathe. Perkins. New.
1 18 in. x 10 ft. " " " "
1 18 in. x 8 ft. " " Wamesit. "
1 18 in. x 8 ft. " " Second-hand.
1 18 in. x 6 ft. Screw Cutting. " "
1 1-Horse Acme Oil Engine.
1 4-Horse Yacht Engine, complete.
1 15 " " " "
1 20 " Horizontal Engine; and 30-Horse Return Tubular Boiler; first-class order; complete; all castings, fittings and stock.

Write us for what you want and we will answer cheerfully.

LOVEGROVE & CO.,
Third and Quarry Streets, Philadelphia.

WANTED.—We have a large Machine for Drawing and Stamping Metals, and want business for same.

GILLETTE BARREL CO.,
163 Temple Court, New York

Second-Hand Machinery in Good Order.

For Sale Cheap.

1 Engine Lathe. 78 in x 14 ft.
1 " 54 in. x 20 ft.
1 " 36 in. x 12 ft.
1 " 24 in. x 15 and 16 ft.
1 " 22 in. x 10 and 12 ft.
1 " 20 in. x 10 and 12 ft.
1 each " 18 in. x 8 and 10 ft.
1 " 17 in. x 8 ft.
1 " " 16 in. x 6, 8 and 10 ft.
1 " " 14 in. x 6 and 8 ft.
6 " 12 in. x 5 ft.
2 " " 11 in. x 4 ft. and 5 ft.
1 " 10 in. x 3½ ft. Foot power
1 15 in. x 6 ft. Brass Turret Lathe.
1 14 in. x 5 ft. Brass Turret Lathe.
1 Planer, 20 in. x 20 in. x 4 ft.
1 " 24 in. x 24 in. x 6 ft.
1 " 26 in. x 26 in x 8 ft.
1 " 30 in. x 30 in. x 8 ft.
1 " 36 in. x 36 in. x 9 ft.
1 " 50 in. x 50 in. x 12 ft.
1 18 x 3 ft. Screw Planer.
1 Shaper, 6-in. stroke. 1 12-in. Shaper, two tables.
1 " each 12, 15, 20 and 28 in. stroke.
1 24 in. Hendey Shaper.
1 Crank Planer. 6 Lincoln Pat. No. 2 Millers.
1 each, 2, 3 and 4 Spindle Gang Drills.
2 each Nos. 1 and 2 Screw Machines. Wire Feed. Pratt & Whitney. Good as new.
1 375-lb. Drop Hammer. Beecher & Peck.
1 400-lb. " " Merrill.
1 60-lb. Vertical Hammer.
1 No. 53 Ferracute Press. 1 Nut-Facing Machine.
10 Foot Presses, assorted. 8 Power Presses, assorted.
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2 Return Tubular Boilers, 35 H.-P.
1 National Bolt Cutter, sizes, ¼ in. to 1 in.
1 Bolt Cutter ½ to 2 in. Seller's Adj. Head.
1 Bolt Cutter ½ to 1½ Merriman Adj. Head. Good order
2 each Nos. 2 and 3 Garvin Hand Millers. Good as new.
1 Horizontal Engine each 25 and 45 H.-P.
1 each 4 and 8 H.-P. Portable Engines.
1 2-Spindle Profiling Machine.
1 Horizontal Boring Machine, 36 in. x 6 ft.
2 No. 3½ Stiles & Parker Presses.
1 No 5 Geared Press Stiles.
1 Bolt Cutter, ¾ in. to 2 in.
2 No. 1 Bliss Foot Presses. 1 12-in. Gear Cutter.
1 Power Mortising Machine.
1 36-in. Band Saw. C. B. Rogers & Co.

Also full line of New Machinery.

New York Agency TAYLOR MFG. CO., Engines, Boilers, &c. Correspondence solicited.

Prentiss Tool & Supply Co.,
P. O. Box 3362. No. 42 Dey St., New York City.

MACHINE TOOLS.

We have for quick delivery and in process of construction:

16 in., 20 in. and 24 in. Lathes.

14 in., 20 in., 33 in. and 49 in. Turret Head Chucking Machines. Screw or Stud Machines with Patent Friction Head, two sizes, 2⅜ in. and 2⅝ in hole through spindle. Complete equipment of Box Tools and Dies for same.

Improved Center Bolt Cutting Machines.

37 in. and 50 in. Boring and Turning Mills, with single or double heads.

Special Heavy Turret Machines, with feed for Boring and Facing, with trip motion for each movement.

All from recent and carefully prepared designs. Workmanship guaranteed. Critical inspection invited.

Nearly 800 Tools in Actual Use.

Established Summer of 1880.

Bridgeport Machine Tool Works,
E. P. BULLARD, Prop.
BRIDGEPORT, CONN.

Trains from Grand Central Depot, New York, hourly; time, one hour and thirty minutes.

New Machine Tools.

One 48-in. Horizontal Boring Machine.
One 32-in. x 14 ft. Engine Lathe.
Twelve 16-in. Engine Lathes.
Fifteen 14-in. Engine Lathes.
Bolt and Nut Machinery for Locomotive and Engine builders a specialty.
See *Iron Age*, Sept. 22 and Nov. 10.

Nicholson & Waterman,

Providence, R. I.

FOR SALE, CHEAP.

1 Two-High 18 inch Train.
50 Nail Machines and Patterns—8d, rod and spike.
1 Steam Hammer and Patterns.
2 Fan Blowers.

FALL RIVER IRON WORKS CO.,
Fall River, Mass.

FOR SALE.

One Second-hand Twiss Automatic Engine, 10x20; also new Automatic Engines, from 20 to 100 h.-p., and Vertical Engines, 4, 6 and 8 h.-p.

NELSON W. TWISS, New Haven, Ct.

MACHINERY ON HAND.

6-in. Crank Shaper, B. & P. New.
8-in. " " Good order.
9 in. " " H. & P. "
12-in. " " " "
12-in. " " Cheap.
10-12-15-in. " Juengst. New.
15 and 20-in. Friction Shaper, Juengst. New.
15 in. Crank Shaper, L. D. & Co. New.
20, 26 and 32 in. Shaper, L. D. & Co. New.
24-in. Shaper, Bridgeport. New.
12 in. stroke Crank Planer. Good
12 in. stroke Trav. Head Shaper. New.
20 in. x 4 ft. Planer, New Haven. Cheap.
20 in. x 5 ft. " Ames. Good.
36 in. x 14 ft. " Enterprise. Good.
37 in. x 8 ft. " Litchly. "
60 in. x 13 ft. " Screw, P. & W. Good.
7-in. stroke Slotter, N. Y. S. E. Co. Good.
7 and 11 in. swing Hand Lathes, for brass. New.
10 and 12-in. " " " Hendey. "
No. 1 Screw Machine, wire feed, P. & W. A 1.
No. 2 Screw Machine, Browne & Sharpe. Good
No. 4 " " " "
No. 5 " Jones & Lamson. "
No. 2 3 spindle Drill, Garvin.
No. 1 and 2 Slate Sensitive Drill. New.
20, 22, 23, 25, 28 and 32-in. Drills New.
Pond Index Milling Machine Fair.
No. 2 Plain Miller, Brown & Sharpe. Good.
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No. 1 " " Pratt & Whitney. A 1.
No. 2 Lincoln Pattern Miller, Ames. A 1.
No. 5 Milling Machine Brainard, A 1.
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Hilles & Jones Shear. Good.
48-in. Gear Cutter. Cheap.
No. 3 and 4 Punch Press, Wilder. Good.
2250-lb. Steam Hammer, Bement. "
25 lb. Dead Stroke Hammer, Justice, Cheap.

Large line of Engine Lathes, Planers and Drilling Machines in stock. Send for list,

Cold Rolled Shafting in stock, all sizes.

Full line of new Machinery. Write for what you want. E. P. BULLARD,
72 Warren St, and 62 College Place, New York.

Bargains in New and Second-Hand Machinery.

One 400 H.-P. Vertical Engine.
One 200 " Corliss Engine.
One 150 " Plain Slide Valve Engine
One 40 " Supplee Engine.
One 40 " I. P. Morris Co. Engine,
One 25 " Hor. Engine. 10-in. 20-in. cylinder
One 30 " Ver. Engine. Jacob Naylor's make.
One 10 " New York Safety Vertical Engine.
One 6 " Wood, Taber & Morse Port. Engine and Boiler on wheels.
One 30 H.-P. Erie City Iron Works Port. on skids.
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One 5 " Fitchburg Vertical Engine.
Six 50 " Hor. Tubular Boilers Good order.
One large lot of Wood-Working Machinery.
One 30 H.-P. Hor. Tubular Boiler
One 25 " " " "
One 30 " Vertical Tubular Boiler.
One 25 " Babcox & Wilcox Water Tube Boiler
One 50 in. Boring and Turning Mill.
One 12 in. Compound Planer.
One 3 Spindle Drill.
One 36 in. Swing by 16-ft. bed Engine Lathe.
One 24 x 16-ft. Engine Lathe.
One 16 x 8-ft. Harrington Lathe.
One 16 x 6-ft. N. Y. Steam Engine Co.'s Lathe.
One 15 x 5 ft. Harris Engine Lathe.
One Fox Lathe with attachments.
One 14 x 10 x 10 Worthington Duplex Pump.
One Improved Cope & Maxwell Deep-Well Pump.
Four Sturtevant Blowers. Second-Hand.

Please write if you want Machinery of any kind. I have a large stock constantly changing.

HENRY I SNELL, 135 North 3d St., Philadelphia.

MACHINE TOOLS.

FOR IMMEDIATE DELIVERY.

1 32 in. x 18 ft. bed, treble-geared **LATHE.**
1 36 in. x 36 x 9 ft. stroke **PLANER.**
1 40 in. x 36 x 12 ft. stroke "

These Planers are held at very low prices.

1 72 in. Pulley **TURNING MACHINE.**
1 72 in. Pulley **BORING MACHINE.**
1 13 in. **SLOTTER.**
1 42 in. Cam Milling Machine for Printing Press Cam

The Newark Machine Tool Works,
NEWARK, N. J.

FOR SALE.

4 6 x 17 Horizontal Tubular Boilers.
1 250 H.-P. Sectional Boiler.
1 9 x 18 Upright Boiler.
1 26 x 48 Corliss Engine.
1 20 x 48 Wheelock Engine.

MARVIN BRIGGS, 12 Broadway, N. Y.

!!! FOR SALE !!!

BAKER BLOWERS, Nos. 5½ and 6, also a No. 5 at Idaho Springs, Col.

ROOT BLOWERS, Nos. ¼, 4, 5 and 7. Sturtevant Blowers, Nos. 4, 6, 7, 8 and 9.

2 WESTINGHOUSE AUTOMATIC ENGINES, 15 and 60 H.-P. each; Air Compressor; Crushers; 20-ton Galena Smelter; write and state your wants to

C. R. BIGELOW, M. E.,
45 Dey St., New York.

REMOVAL.

All my stock must be sold. No reasonable offer refused.

1 20 x 48 Corliss Automatic Engine.
1 12 x 42 Green Automatic Engine.
1 12 x 24 in. Horizontal Engine.
1 8 in. x 15 in. " " New.
2 8 in. x 12 in. Ames Engine. Nearly new.
1 5 in. x 10 in. Horizontal Engine.
1 10 H.-P. Horizontal Engine.
1 15 H.-P. High Speed N. Y. Safety Engine.
1 6 H.-P. Baxter Engine and Boiler.
1 4 H.-P. Portable Engine and Boiler.
1 6 Horse-Power Upright Engine.
1 10 Horse Upright Engine
1 5 x 12 Double-Drum Hoisting Engine and Boiler.
2 5 ft. x 16 ft. Horizontal Tubular Boiler.
1 4 ft. x 14 ft. Horizontal Tubular Boiler.
1 40 H. P. Locomotive Boiler.
1 36 in. x 11 ft. New Locomotive Boiler.
1 12 H.-P. Upright Boiler.
3 15 H.-P. New Upright Steel Boilers.
2 New Steel Yacht Boilers.
4 16 in. x 6 ft. Engine Lathe.
1 14-in Stroke, Hewes and Phillips Shaper.
1 36 in. Back-Geared Drill. Self-Feed.
1 Ames 4-Spindle Drills.
1 Pratt & Whitney 4-Spindle Drill.
1 Double-Spindle Milling Machine.
1 12 in. Heavy Slotting Machine.
1 4 in. Morris & Tasker Pipe Threading Machine.
1 set Rubber Grinding Rolls.
9 Tanks, 8 ft. x 5 ft. x 5 ft. 3 in.
1 Tank, 8 ft. diam. x 8 ft. high.
Nos. 3, 4, 5 and 6 Woodward Steam Pumps.
1 Set Power Shears, cut any width.
4 4 ft. Burr Mills, Complete.
12 Contractors' Side-Dumping Cars.
3 Ingersoll Rock Drills
2 Guild & Garrison Air Pumps.
1 6 ft. Vacuum Pan.

ROBT. J. GRAY,
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ENGINE LATHES.

THE HENDEY
14-inch Engine Lathe

— 18 A —

First-class Machine in every particular.

It is strongly geared, has a raise and fall Rest, Hollow Spindle, large bearings, is convenient to handle, and does light or heavy work equally well.

It is becoming the most popular Lathe of this size in the market.

Have other Sizes of Lathes, also Shapers, Planers, &c. Send for Catalogue and prices.

THE HENDEY MACHINE CO.
Torrington, Conn.

FOR SALE.

VERTICAL ENGINES,

One 32 in. by 32 in.
One 15 in. by 11½ in.
Cylinder Boilers.
Steam Pumps.

For further particulars apply to

DAN'L W. RICHARDS & CO.,
88 to 96 Mangin St., New York.

SECOND HAND
MACHINISTS' TOOLS.

1 Planer, planes 12 ft. long, 48 x 38, double heads on cross head
1 Planer, planes 12 ft. 35 in. x 34 in.
1 7-ft. 28 x 28 Planer.
1 Planer, planes 3 ft. long, 19 in. x 16 in.
1 18 ft. bed, 50 in. Engine Lathe.
2 8-ft. 18 in. Engine Lathe.
2 Monitor Head Lathes.
1 9-ft. bed, 16 in. Engine Lathe.
1 Horizontal Boring Mill, 48 in. swing.
1 No. 1 Pratt & W. Screw Machine, Wire Feed.
1 2-spindle Pratt & Whitney Drill.
1 6-spindle Pratt & Whitney Drill.
1 2-spindle Edging Machine.
1 6-in. Crank Shaper, A1 order.
Send for List of Second hand Tools.

New York Machinery Depot,
Bridge Store No. 16, on Frankfort st., New York.

MEMORANDUM
FROM
HENRY I. SNELL,
135 North Third St.,
PHILADELPHIA.

I have for sale cheap a new **New York Safety Steam Power Company's Steam Yacht Engine and Boiler,** with Pumps, Condenser and all attachments for the complete equipment for a boat 65 to 70 feet long, and capable of driving the same about 12 miles per hour.

FOR SALE.

ONE OF GEORGE H. CORLISS'S UPRIGHT ROLLING MILL ENGINES;

Cylinder, 32 in. x 60 in.: Shaft, 17 in. Diameter, with fly wheel of 25 tons weight and 20-foot diameter fitted to the shaft; *also* 1 Berryman Heater 4 feet diameter, 12 feet high, with steam and exhaust pipe and fittings for same; *also* 2 Sturtevant Steel Pressure Blowers, 6 ft. diameter; Outlet, 20 x 24, with 14 in. pulley on each side for 12-in belt. Address

NATHAN HENHAM, Hartford, Conn.

FOR SALE.

ONE SCREW PLANER.—14-foot Bed; will take in 4 feet between uprights.

Address
SHICKLE, HARRISON & HOWARD IRON CO.
St. Louis, Mo.

ENGINES AND BOILERS.

One 20 x 48 Horizontal Corliss Engine.
" 18 x 48 " " "
" 16 x 32 " Wright "
" 14 x 42 " Wheelock Engine.
Two Horizontal Tubular Boilers, 80 H.-P. Inspected by Insurance Co.
One No. 6 Knowles Steam Pump.

D. B. CRUIKSHANK,
243 Dyer St., Providence, R. I.

MACHINERY SALE.

38 in. x 36 in. x 12 ft. Pond Planer in good order,	$800
30 in. x 24 in. x 6 ft. Planer, with new gears and screws	250
26 in. x 24 in. x 5½ ft. New Haven Planer, in fine order	400
18 in x 10 ft. Engine Lathe, with 9 in. chuck	185
14 in. x 6 ft. Engine Lathe newly repaired	150
26 in New Haven B. G. Drill, good order	100
4 x 6 Horizontal Engine, nearly new	125
8 x 12 Horizontal Engine, good order	150
10 x 15 Horizontal Engine, good order	175

Large stock of new Tools, Engine Boiler, &c. Send for stock list. S. M. YORK, Cleveland, Ohio.

ENGINES.

14 in. x 48 in. Corliss Beam.
26 in. x 6 ft. " "
18 in x 48 in. Greene Horizontal.
One pair Corliss Horizontal, 30 in. x 6 ft., first-class, now running.
New Engines, from 2 H.-P., Vertical or Horizontal.

A. B. PITKIN,
Providence, R. I.

FOR SALE.

Blowing Engine, new and first-class; Steam Cylinder 36 in. diam.; Blowing Cylinder 84 in. diam.; Stroke 48 in.; Weight 71 tons. Can ship in ten days' notice.

CLEVELAND SHIP BUILDING CO.,
Successors to Cuyahoga Steam Furnace Co.,
Cleveland, Ohio.

GOOD SECOND HAND TOOLS.

I want to buy for cash good second-hand

LATHES, PLANERS AND DRILLS.

Address "A. B. S.,"

Office of *The Iron Age*, 66-68 Duane Street, N. Y.

FOR SALE.

At less than half first cost, a Delamater Duplex 16 in x 36 in. Compressor, in thoroughly good working order. Address

L. C. BIERWIRTH, Sec'y, Dover, New Jersey.

Rolling Mill Machinery
For Sale.
SHEARS, ENGINES, BOILERS, FLOOR PLATES, &c.

One Heavy Plate Shear, 48-inch throat.
" Large Lever Shear. Cutting old rails.
" Small " " " scrap iron.
" Rotary " " " strips 5-16 in.
" Large Upright " " tops and bot'ms 1 in
" Small " " " ¾ in
" Upright High-Pressure Engine, 16 x 18 in.
Two Winslow Squeezers. One new.
One Dudgeon Steam Hammer, 18 in. diam., 40 in. stroke.
Upright Tubular Boilers, 15 ft. long, 60 in. diam.
Cylinder Boilers, 20-24 ft. long, 30 in. diam.
Stacks, 30 to 50 ft. long, 30 in. diam.
One Crane (iron) about 5 tons.
Two Cranes about 5 tons capacity.
Cast Iron Floor Plates, 2 x 4 ft
Boshes, Puddle Furnace Castings, Steam Piping (cast and wrought iron).
Blast Pipe, Cinder Buggies, Tanks, Rolls and Housings, &c.
Beam Engine, 14 x 30 in.
" " 30 x 60 in.

The above are in good order, and for sale in lots to suit for immediate delivery.

THOMPSON C. GILL & CO.,
210 S. Third St., Philadelphia, Pa.

SECOND HAND
DROPS AND LIFTERS

bought, sold, or taken in exchange for new.

BEECHER & PECK,
New Haven, Conn.

ROLL TURNING LATHES, BLOWER AND ENGINE.

One Single Roll Turning Lathe, 18 in. Roll.
" Upright Engine, 6½ in. x 17 in.
" Root Blower No. 7.
All in good order.

THOMPSON C. GILL & CO.,
210 So. 3d St., Philadelphia, Pa.

FOR SALE.

One 15-Light Dynamo complete, with 15 Arc Lights. New.

DANIEL KELLY,
51 North 7th St.,
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FOR SALE.

75 Tons Stove Plate.
100 Tons Machinery Iron.
Also Old Iron and Metals of all kinds.

PETTIS & HIGGINS,
301 Fountain St., Providence, R. I.

FOR SALE AT LOW PRICES.—1 each, 12 and 16-in. Turret Lathe, Warner & Swazey, good order. 1 12-inch Automatic Turret Lathe, Freck new, $150. 1 2 Spindle Drill Press with Adjustable Spindles, $50. 1 No. 2 Garran Hand-Feed Miller, good order, $75. 1 Power Punch, punches ⅛ x ½ new, $1 5. 2 Large Screw Punches, good order and cheap. 1 3-Spindle Horizontal Nut Tapper, good order, $75. 1 36-inch Car Wheel Borer, good order, $250. 1 36-inch Pulley Turning Lathe. 1 Seymour Pulley Balancing Machine. A large assortment of Lathes, Planers, Shapers, etc. New and second hand. Send for catalogue.
W. H. ROBERTSON, 51 So. Canal St., Chicago, Ill.

STEEL PLATE.

For Sale, a lot of Steel Plate 5-16 in. to ½ in. thick up to 108 in. wide; will shear in size and shapes to suit.

THOMPSON C. GILL & CO.,
210 So. Third St., Philadelphia.

FOR SALE.—18 x 42 CORLISS ENGINE, built very heavy for the Brush Electric Light Co.; other styles of Automatic and Plain Slide Valve Engines, Boilers and Pumps.
FRANK McSWEGAN,
Dover St. and Franklin Sq.

CRANE WANTED.

We would like to buy a second-hand GIB CRANE, 5 tons capacity, with about 25 ft. gib. Send description and price.

WILLIAM TOD & CO.,
Youngstown, Ohio.

W. P. DAVIS

North Bloomfield, N. J.

HAS FOR SALE

50 Key Seating Machines.
50 Standard 20-in. Drills.
1 Engine Lathe, each 18 in., 20 in. and 22 in.
1 Shaper, each 15 in., 20 in. and 24 in.
1 38 and 1 50 H. P. Automatic Engine.
1 each 10, 15 20, 25, 30, 40, and 50 H. P. Boilers.
All the above are new and first-class.
The following second hand Engine and Boilers:
1 each, 25, 35, 60 and 8 H. P. Horizontal Boilers and
1 35 H. P. Engine. All the above in No. 1 order.

SECOND HAND.

Engines, Pump, Blower, &c.

1 Upright Engine, 12 x 16, about 40 horse-power.
1 Horizontal Engine, 8x12, about 15 horse-power.
1 Hoisting Engine, 7 x 10.
1 Hydraulic Pump, 5 x 6.
1 Keystone Blower, 7½ inch discharge.
1 Berryman Heater, 2 ft. diameter, 8 ft. long.
1 Hall's Pulsometer, 1½ in. discharge.
1 Hall's Pulsometer, 3½ in. discharge.
Pipe, Shafting, Hangers, &c.
4 Box Dump Cars, 2 ft. 1 in. gauge.
All in first-class condition. Apply to
EDWARD J. ETTING,
232 S. 3rd St., Philadelphia, Pa.

JUNE 15TH, 1888.

We have reduced the prices on our Portable Drills.

Send for new Price List taking effect his date.

Thos. H. Dallet & Co.,

508 N. 13th St.,
Philadelphia, Pa.

ASSIGNEE'S SALE.

Smith, Beggs & Ranken Machine Company Property!

Embracing nearly an **Entire Block of City Real Estate** described as follows: The **whole Main Street front of City Block No. 29**; being 240 feet on West side of said street, with a frontage of **160 feet on East side of Second Street; 300 feet on South side of Monroe Street** (entire block front), by **150 feet on North side of Clinton street**; being Lots Nos. 34, 35, 36, 62 and 63 of said Block; also all the improvements, machinery, fixtures, tools and patterns on the above described premises.

This property (being one of the largest and most complete establishments of the kind in the Western Country) will be sold by the undersigned, by order of Court, at Auction, on the premises, to the highest bidder, for cash, subject to a mortgage of about $60,000, on Tuesday, the 21st day of August, 1888, between the hours of 12 o'clock noon and 2 o'clock p. m. of said day.

WM. H. THOMSON, ASSIGNEE,
at Boatmen's Saving Bank,
St. Louis, Mo., July 9th, 1888.

ROLLING AND NAIL MILL MACHINERY FOR SALE.

Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).
One 16-in. Nail Plate Train of three stands of rolls, with pinions, tools and fixtures complete.
One 18-in Muck or Forge Train, two stands of rolls.
One 50c-Horse-Power Corliss Beam Engine, with condenser, pumps and other connections.
70 Nail Machines.
3 Spike "
3 Guillotine or Plate Shears.
15 Grindstones, fixtures and countershafts.
43 Gould's Patent Nail Feeders.
About 600 ft. Shafting with pulleys; also Lathes, Planers, Drills and all necessary tools to do repairs.
All in perfect running order and will be sold cheap, as a whole or in parts. Above now located at Weymouth Iron Works, East Weymouth, Mass.
Enquire of
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Full information given regarding the many advantages offered by our city as a manufacturing centre, among them being 16 lines of railroads; coal at 50 cents per ton, &c., &c.

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Consisting of one 3-ton converter, complete, with bottoms, hydraulic cranes, ladles, pumps, cupola crusher and pan, drying ovens, castings, accumulator, hydraulic valves, piping, etc., ready for erecting.

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A large lot of Watson's Fire-Brick, new, for sale cheap.
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SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

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SIXTH and CULVERT STS., CINCINNATI, OHIO.

Wanted to Buy,

A Good Second-hand or New 60 in. x 60 in. PLANER, to plane from 15 to 30 feet. If Second-hand, must be of modern design and in first-class order.

FOSDICK & PLUCKER,
Sixth & Culvert, Cincinnati, Ohio.

WANTED.

Four or five Cinder Cars for standard gauge track, to hold from 5 to 8 tons of cinder each.

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VALLEY FORGE MILL AND WATER-POWER

(Belonging to Estate of Charles H. Rogers, dec'd.), Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.
For particulars, address
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FOR SALE.—The Northwestern Foundry. Largest and best in Minneapolis. Located on half of block 106 (330 x 165 ft.) and part of block 105, corners Third street, Ninth and Tenth aves., South. Main building (200 x 60 ft.) is brick with slate roof, contains four Cranes, three Cupolas, &c., complete set of Car-wheel and various patterns for Stoves, Machinery, Architectural, Ornamental, Bridge and Railroad Castings. Office also of brick, 40 x 20 feet; fire-proof vault and burglar safe in same. Will sell the entire plant, including the valuable Real Estate, Railroad Tracks, Track and Wagon Scales, &c. All the above in first-class order.
Address
MENZEL & FERGUSON,
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One 6 H.-P. N. Y. Safety Engine.
One Vertical Boiler, 60 H.-P. Second-hand.
One 70 H.-P. Buckeye Automatic Engine. Second-hand.
One 25 H.-P. Engine. New.
Two 600 gallon Compound Pumping Engines, with Fly Wheel. New. Address
KEYSTONE ENGINE & MACHINE WORKS,
W. L. SIMPSON, Proprietor,
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One new Star Tool Co.'s Cutting-off Machine, capable of cutting 5-in stock.
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Twenty new modern Lathe and Planer Chucks, popular makes, all sizes, at large discounts from manufacturers prices.

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Agents and Traveling Men to sell the most complete stock of Boilers and Engines, Drive Well Points and Tools and Pumps in America.

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FOR RENT!!! "Water Power," "Water Power."—The nearest available water power to New York City at Boonton, New Jersey. Constant all the year around! This magnificent water power will be leased in small or large quantities to suit the tenant. Suitable buildings erected for all kinds of manufacturing purposes. Splendid shipping facilities! On the line of railroad and canal. Only 50 minutes from New York City by train. This power will be leased at a great reduction on steam. Address LORD ESTATE, 68 Wall Street

COIL-BOILERS FOR THE U NITED STATES NAVY.—NAVY DEPARTMENT, Washington, D. C., August 2, 1888.—The Navy Department, having in view the possible decrease in weight of machinery in vessels of war by the use of tubulous, sectional or coil-boilers, has determined to adopt such boilers, if suitable can be found, for a portion of the steam-power of one or more of the vessels about to be built. To this end manufacturers who wish to offer such boilers for use by the Department are hereby invited to furnish plans of the same, adapted to an armored coast-defence vessel, on or before September 15, 1888. Plans must be accompanied by certificates that boilers of the same make are or have been in successful use at sea or on shore. Plans showing the space in the vessel available for boilers, particulars of the duty required and other information, may be obtained upon application to the Bureau of Steam Engineering. The boiler which appears to the Department, after investigation, to be the best for the purpose, taking into account the evaporative efficiency, the dryness of the steam, the weight of the boiler, the weight of the water contained, the accessibility for repairs, the ease of making repairs, the simplicity and interchangeability of the parts, the space occupied, the ease of firing and of regulating the feed, the suitability for working in battery, the capability of long-continued steaming without cleaning, and the durability, will be adopted in the coast-defense vessel above mentioned, provided that the price, which must be stated when the plans are submitted, is satisfactory to the Navy Department. Such boilers as appear to possess merit will be tested by the Navy Department, if the manufacturers so desire, to determine which is the more suitable for the purpose. Manufacturers who wish their boilers to be tested must furnish a boiler of the type of one of those proposed for the vessel and prepare it for test, either at their own works or at such place as may be arranged with the Department. The expense of the test of the accepted boiler will be borne by the Navy Department, and the cost of the fuel used in the test of the second best will also be borne by the Navy Department. All other tests must be at the expense of the parties offering boilers for competition.

WILLIAM C. WHITNEY,
Secretary of the Navy.

A GOOD HARDWARE BUSINESS FOR SALE.

Wishing to retire from all active business, the undersigned offer for sale their valuable and thoroughly established business. The stock is clean and well selected. Waverly, New York, is a growing place, with considerable manufacturing, and surrounded by a good farming country; has good water, gas works and sewers, also five railroads radiating from it. The location of the store building is central, with every convenience, including hydraulic elevator, &c. The business has been conducted successfully as wholesale and retail; can be continued as we have conducted it, or else we can soon reduce the stock, and it can be conducted as a retail alone.

In negotiating sale, reference given and required.

MERRIAM BROS., Waverly, N. Y.

FOR SALE.

AN UNUSUAL OFFER.

An old established Hardware Business doing the leading wholesale and retail trade in one of the best towns in Minnesota. This is an opportunity seldom offered. Reason for sale, death of proprietor. Address

H. V. RUTHEFORD,
Attorney-at-Law, St. Paul, Minn.

FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock, Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85 , wo stories. Warehouse, 22 x 30, two stories in rear. Does a large and paying business, which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade. Address

W. L. HAY & SON,
Iowa Falls, Iowa

FOR SALE.

Nice clean stock of general hardware, stoves, &c., with tin shop in connection; will invoice about $5000. Located in thriving town of 5000 inhabitants, situated on two lines of railroad, within twenty-five miles of Minneapolis. Well-established business. Satisfactory reason for selling. For further particulars inquire or address

MILLER BROS. & FLETCHER,
119 & 121 2nd St., So., Minneapolis, Minn.

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HARDWARE STORE located in one of the largest cities on the New York, New Haven and Hartford R. R. *Established in* 1848. Location best in the city. Will inventory about $12,000. Satisfactory reasons for selling. Address

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NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia please address

J. B. CARTER,
Hardware Manufacturers' Agent.
504 Commerce Street, Philadelphia, Pa.

EUGENE BISSELL, Auctioneer.

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Successors to
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HARDWARE AUCTIONEERS,
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Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

FOR SALE.—A first-class Boiler and Sheet Iron Business in a thriving Western city of 100,000 inhabitants. Shop has been in operation eight years and has a growing and profitable business which can be largely increased. Good buildings, power tools, and first-class location on R. R. track. Good reason for selling. Correspondence and investigation from parties meaning business solicited. Address

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OF

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For New York, New Jersey and New England States.

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Two young men of long experience in Wholesale Hardware business, well acquainted with the trade in Kentucky and the South, solicit correspondence with manufacturers desiring to establish a branch or agency in Louisville, Ky., for Heavy and Light Hardware, Pig Iron, &c.

Address LOCK BOX No. 26,
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The advertisers, two young men, energetic, reliable and experienced in Wholesale Hardware business, solicit correspondence with manufacturers desiring to establish a branch or agency in Chicago. Address

"C. & L.,"

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WANTED.

Two or three good lines of

STAPLE GOODS IN HARDWARE

by a first-class salesman visiting the jobbing trade in the West and Northwest. Address

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AN IRON CO. having large quantity of orders, a well-equipped, newly built and well located Plant, for the manufacture of Steam-Heating Material, such as Radiators, Pipe Fittings, &c., and worth about $50,000, net, wish to increase their capital and business and obtain from $10,000 to $30,000, and a gentleman capable of managing office affairs. It is the only concern of the kind in the Northwest, and the trade in this section is unlimited. Address, "Iron Co.," Room 7, Gilfillan Building, St. Paul, Minn.

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4 dozen Plated Mortise Knobs, 2¼ inches, at $6.00 per dozen.
250 gross Fancy Wood Shutter Knobs, 1½ inches, at 50 cents per gross.
For sale by

JOHN BROWER,
P. O. Box 1423,
New York.

FOR SALE.

A rare chance is offered for the purchase of one of the oldest Wholesale Hardware Stores in the South (established 1839); a clean, well assorted stock; no shop worn goods; stock will inventory $30,000; can be reduced if so desired; good reasons for selling. For particulars address

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Valuable Manufacturing Property
FOR SALE.

The real estate and buildings now occupied by the Watertown Steam Engine Co., of Watertown, N. Y., will be offered for sale. The property covers about four acres; has an unfailing water power on the Black River estimated at 225 h.-p. Consists of machine shop, foundry, boiler shop, blacksmith shop, store houses and tenements. The buildings are equipped with line shafting, and could be adapted to a large variety of manufacturing purposes. Moderate cost of labor, combined with low freight rates and nearness to raw material, with an abundant water power, make Watertown an exceptionally good point for manufacturing. It is essentially a manufacturing town.

The property can be divided and sold in parcels if desired.

Address WATERTOWN STEAM ENGINE CO., Watertown, N. Y.

WANTED.

HARDWARE SPECIALTIES to manufacture or will buy good patents. Address with particulars

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HARDWARE BUSINESS WANTED.

Address "SPOT CASH,"

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SOUTHERN AGENCIES WANTED.—A man of long experience on the road has secured the Southern agency for a few lines, with office and headquarters at Chattanooga, Tenn., and wishes to correspond with manufacturers that wish their goods represented in the South will call on the trade three to four times a year. References on application. Address "W.", care Postmaster, Chattanooga, Tenn.

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A LIVE MAN with small capital can buy an interest in an established Hardware Novelty Manufacture. Address

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One half of Basement. All of Subcellar.
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Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

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WANTED—Machinist Foreman, one who is practical and educated in the manufacture of Pipe Fittings, Radiators, &c. A good opportunity for the right man. Address ST. PAUL SUPPLY CO., St. Paul, Minn.

A MAN competent to superintend a Copper Rolling Mill. Address "H. W. S.," office of *The Iron Age*. 66 and 68 Duane St., N. Y.

TRAVELING SALESMEN WANTED.—COMPETENT, ENERGETIC AND PUSHING SALESMEN to sell a line of special goods well known to the Hardware, Stove and House-Furnishing Trade; must be familiar with the Hardware Business, and experienced in selling goods on the road, and furnish first-class references. Other lines not conflicting can be taken. Liberal commission. Address "Box 141," Manchester, N. H.

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Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

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WANTED BY A YOUNG MAN, 22 years old, a situation in a wholesale or retail Hardware Store; four years' experience; one year on the road; reference given. Address "COPPER," Lock Box 1086, Philadelphia.

WANTED.—Agency for the West and Pacific Coast for a line of Staple Hardware or good specialties. Address "WORKER," Box 181, Office of *The Iron Age*, 66-68 Duane St., N. Y.

A PRACTICAL and experienced Iron and Steel Rolling Mill Superintendent (Bar Plate and Rails), and also builder of mills and works, making plans, working drawings, &c., having been engaged on such work for over 20 years; just completed the erection of an extensive plant, and is now open for an engagement in either capacity; first-class references. Address "B. J. H.," office of *The Iron Age*, 66 and 68 Duane St., New York.

WANTED—Situation as Foreman of Boiler Shop; have had large experience on every variety of Boiler work, and the management of workmen; know how to work men and tools up to their full capacity; can make drawings and estimates; would like to run a shop on the contract system; first-class references. Address "PIECE WORK," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

ENGLAND. — Advertiser returning, would like to represent a good house there; 8 years' experience (2 in U. S.) in Tools and Hardware. Good references. Address J. J. LEAVER, care of Chas. A. Strelinger & Co., Detroit, Mich.

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METALLURGICAL CHEMIST with large experience in the manufacture of Bessemer, Siemens Martin, Crucible Cast Steels, and in the management of Blast Furnaces, desires an engagement with reputable manufacturing or commercial concern. Address "T. K. L.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

AN ACTIVE, EFFICIENT BUSINESS MAN of long experience in New York, with executive ability, would like a responsible position in the Wholesale Hardware or other business, as buyer or manager for any department; thoroughly qualified; highest references. Address "EFFICIENCY," office of *The Iron Age*, 66 and 68 Duane St., New York.

WANTED.—A graduate in Chemistry of the Johns Hopkins University desires a position as analyst or assistant in a laboratory or chemical industry. Recommended by Prof. Remsen. Address B. H. HARTOGENSIS, 17 E. Baltimore St., Baltimore.

A GENTLEMAN who has had an extensive business experience and who possesses business abilities of a high order, would like to make an arrangement to take charge of a Chicago Agency for some first-class Eastern manufacturing firm Best of references, both East and West. Address "H.," Office of *The Iron Age* 66 and 68 Duane Street, New York.

A MECHANICAL ENGINEER for 8 years in charge of the Drawing Room of a large establishment manufacturing Engines, Sugar Mills, Rolling Mills, Cotton Compressors of 2500 tons capacity, Ice Machines, &c., desires to make a change. Address "H. E. S.," office of *The Iron Age*, 66 and 68 Duane St., New York.

A CHEMIST of ability and experience desires an engagement with an Iron or Steel company; is skilled in all forms of Iron and Steel analysis, &c., and can furnish first-class references. Address "S. D. M.," office of *The Iron Age*, 66 and 68 Duane St., New York.

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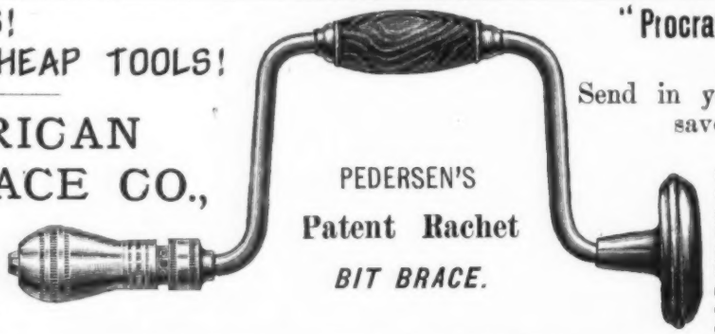

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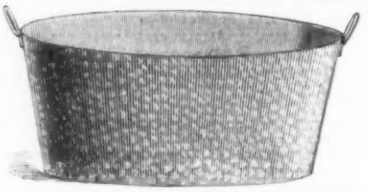

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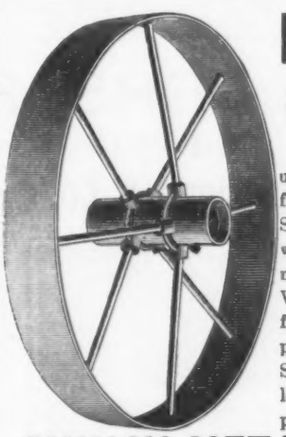

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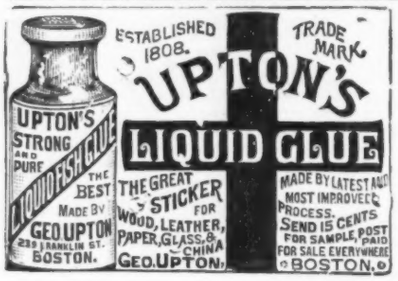

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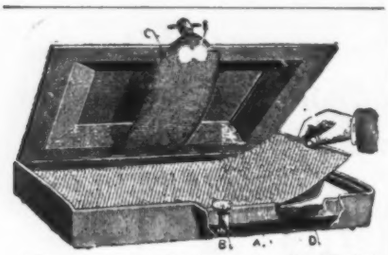

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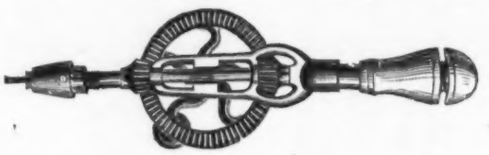

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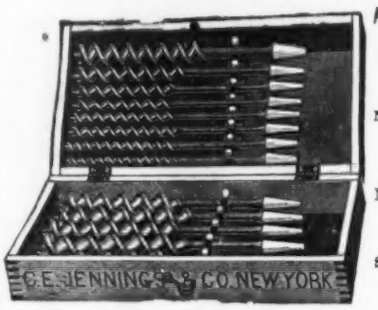

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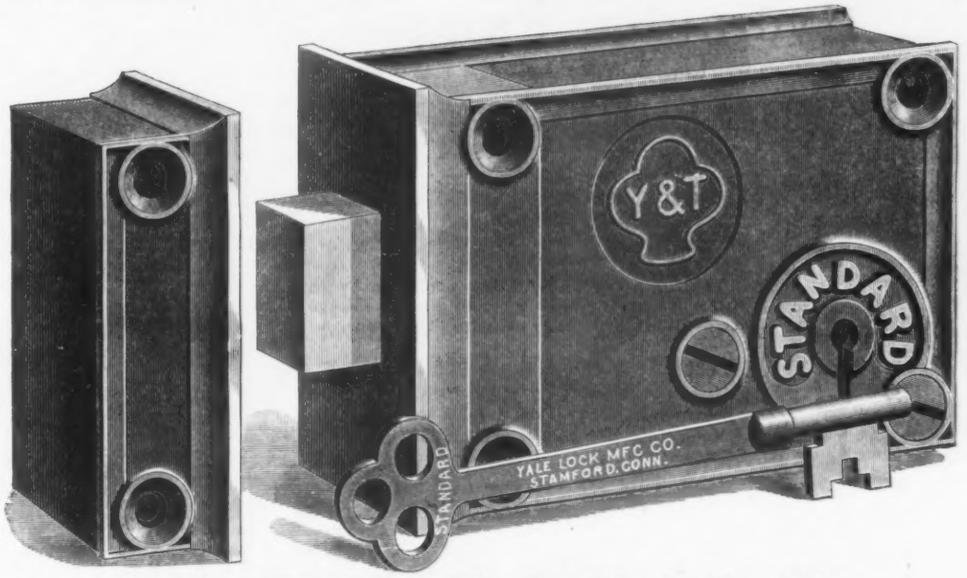

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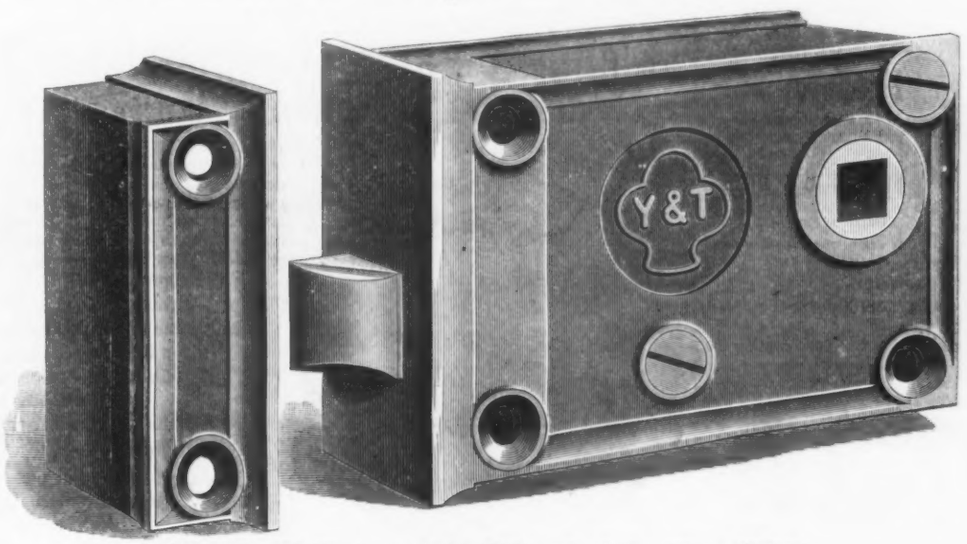

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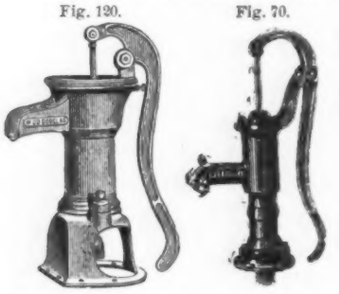

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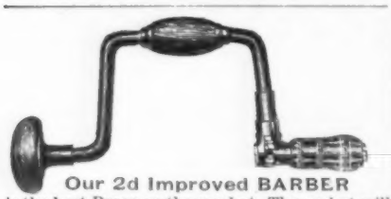

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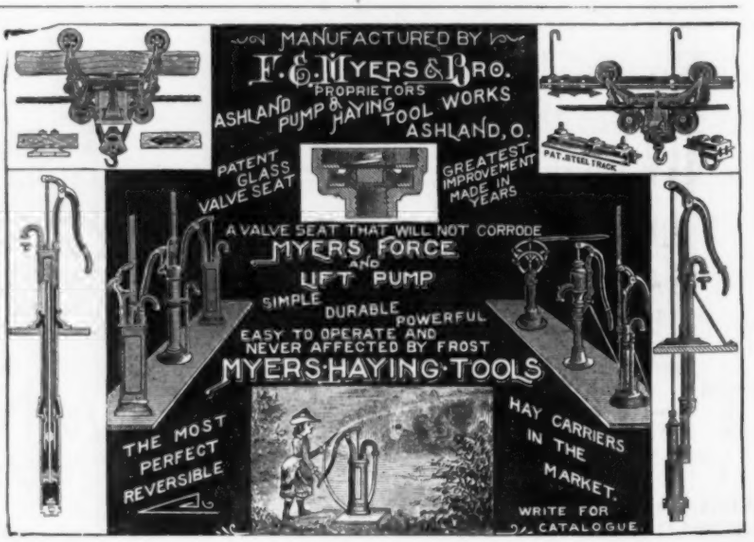

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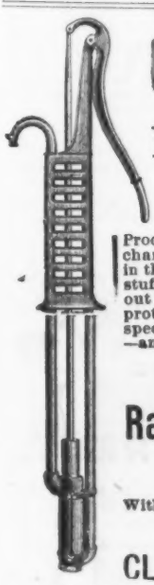

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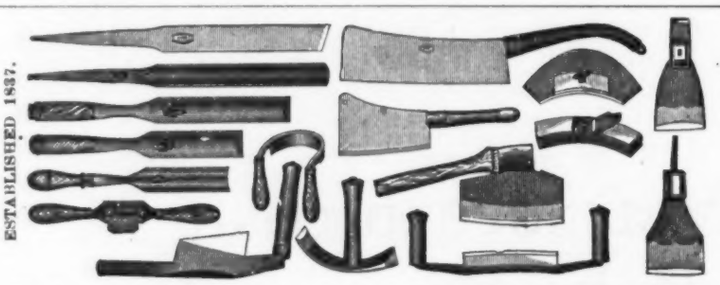

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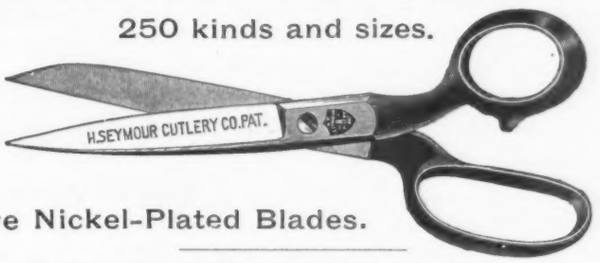

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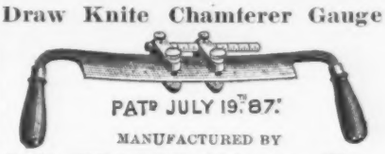

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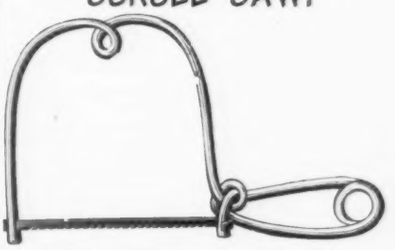

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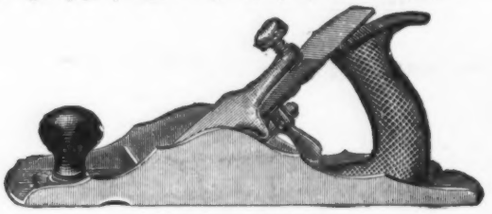
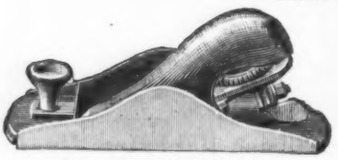


Jacks and Jointers.

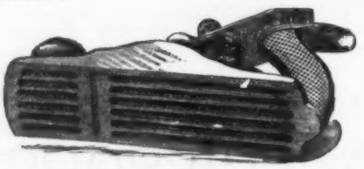
Jack Plane.—Nos. 77, 78.



Nos. 20 and 30 Blocks.

These planes (*with a smooth face*) have been in the market for many years, obtaining a steadily increasing trade as they have become known. We claim for them the utmost simplicity of construction, prompt adjustment and superior beauty of style and finish.

The clamp plate and lever are nickel-plated; the handle is of checkered rubber, which is stronger than any wood handle, and affords an easy, firm grip—also made with nickled iron handle.



Smooth Plane, Corrugated Bottom.

This Cut shows the surface of our new Corrugated Iron Planes. The corrugations afford ample air spaces, and reduce the traction and friction to the minimum. Same price as smooth face.

Corrugated face.	Smooth face.	
	No. 202, Iron Smooth Plane, 7x1⅝ in. Cutter	$3.00
	No. 203, Do., do., 8x1¾ in. do	3.52
	No. 204, Do., do., 9x1¾ in. do	3.35
No. 1205	No. 205, Do., do., 9x2 in. do	3.50
	No. 206 Iron Jack Plane, 12x2	3.85
No. 1207	No. 207, Iron Jack Plane, 15x2¼	4.25
No. 1208	No. 208, Iron Fore Plane, 18x2¼	5.00
No. 1210	No. 210, Iron Joiner Plane, 22x2⅜	5.75

Corrugated face.	Smooth face.	
	No. 211, Iron Joiner Plane, 24x2⅜	$6.75
	With Adjustable Throat.	
	No. 233, Iron Smooth Plane, 8x1¾.	3.50
No. 1255	No. 255, Iron Smooth Plane, 9x2.	3.75
	All of these Planes are nickel-plated finish.	
	No. 20, Block Plane, Japanned, 6½x1⅝ in. Cutter	1.40
	No. 30. Block Plane, Nickel-Plated, 6½x1⅝ Cutter	1.65

OUR NEW WOOD BOTTOM PLANES.

The Clamping Plate and Lever are nickel-plated; the Beechwood has been thoroughly seasoned and is a thicker block than usual, though the Plane is no heavier than those already in the market.

No. 72.	Smooth Plane, 7	x1¾ inch Cutter,	$2.00
" 73.	" " 8	x1¾ " "	2.00
" 74.	" " 8½	x2 " "	2.00
" 75.	Handled Smooth Plane, 9	x2 in. Cutter,	2.50
" 76.	" " " 10	x2⅜ "	2.75
" 77.	Jack Plane, 15	x2⅛ inch Cutter,	2.35
" 78.	" 15	x2¼ "	2.60
" 79.	Fore Plane, 18	x2⅜ inch Cutter,	2.75
" 80.	" " 20	x2⅜ " "	2.75
" 81.	Jointer Plane, 22	x2⅜ inch Cutter,	3.00
" 82.	" " 24	x2⅛ " "	3.10
" 83.	" " 26	x2⅝ " "	3.25
" 84.	" " 28	x2⅜ " "	3.25

The Adjustable Mouth Smooth Plane is a new feature, and meets with a great deal of favor.

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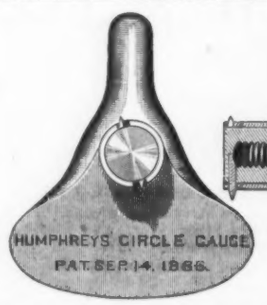

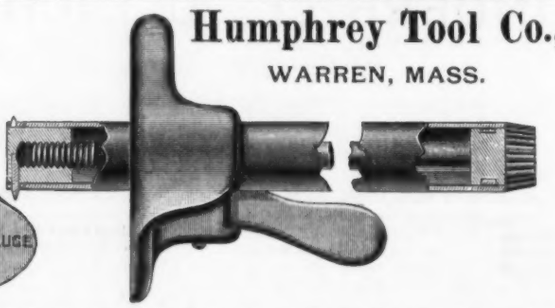

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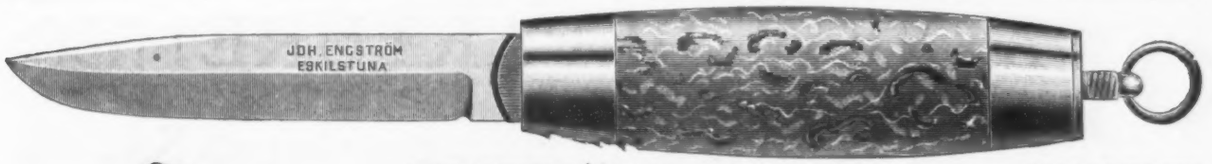

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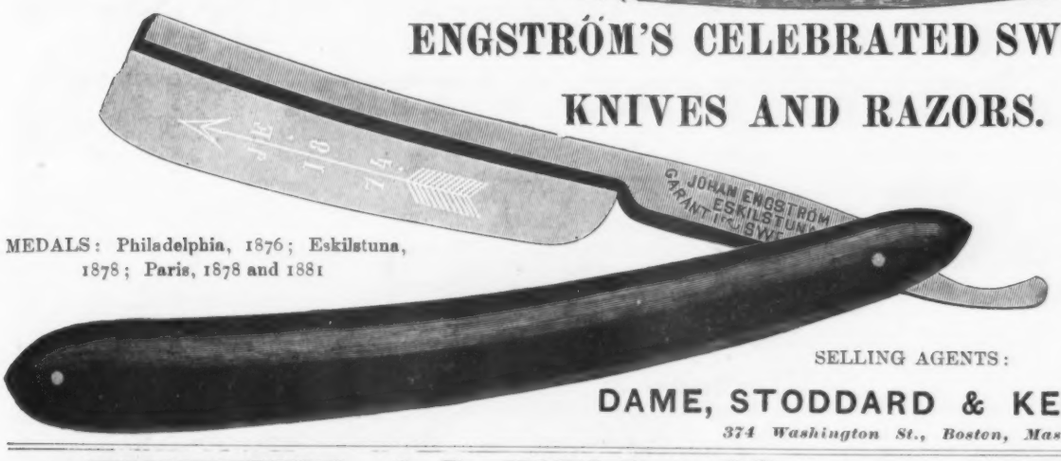

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"Telling Tales out of School."
Anchors.
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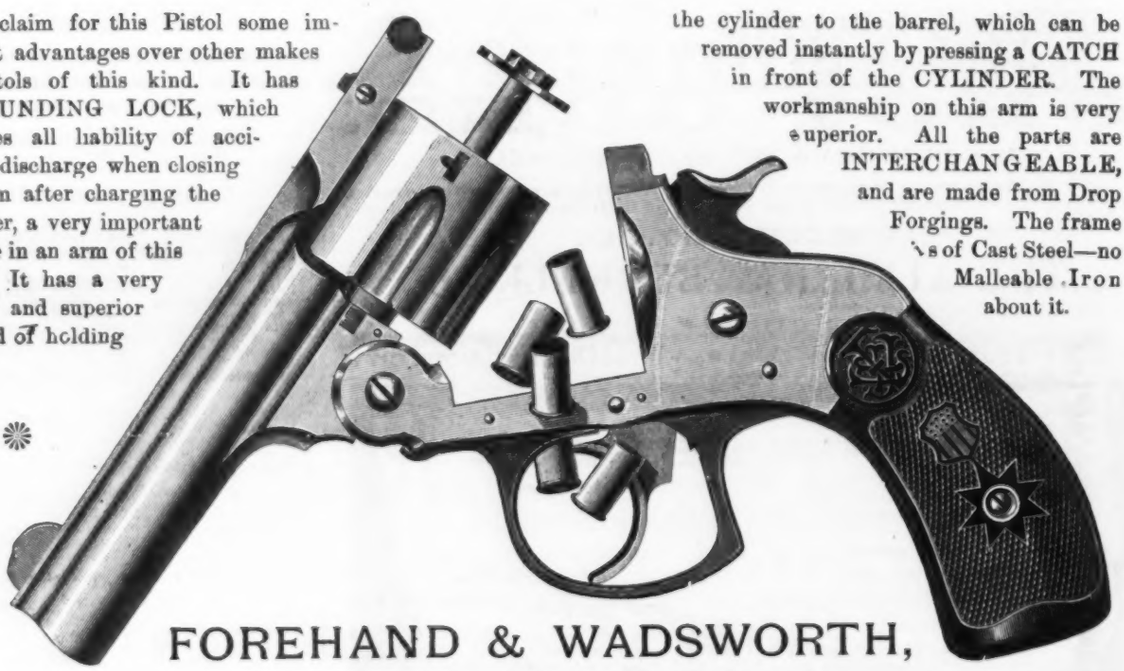

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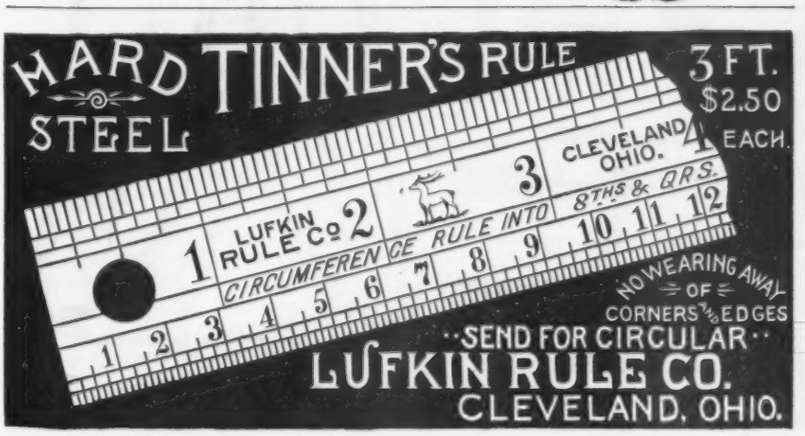

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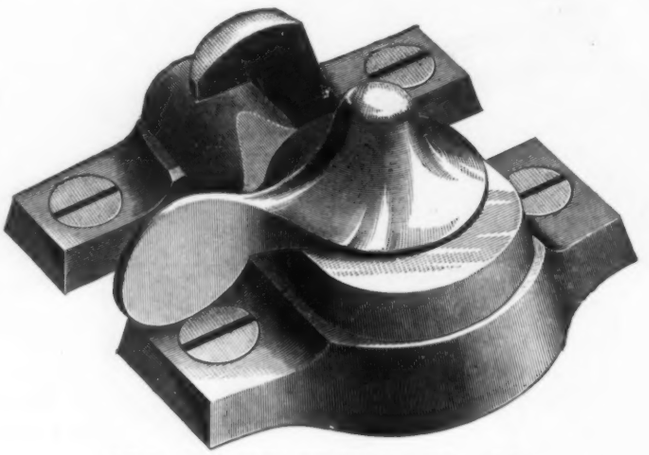
METAL-PLATE WORK; ITS PATTERNS AND THEIR GEOMETRY. Also notes on metals, and rules in mensuration for the use of tin, iron and zinc plate workers, coppersmiths, boiler-makers and others. By U. T. MILLIS. **$3.00.** Sent, postpaid, on receipt of price, by DAVID WILLIAMS, Publisher and Bookseller, 66 & 68 Duane Street, New York.

THE IVES PATENTED

SASH LOCKS AND MORTISE BOLTS

A very important feature of the IVES SASH LOCK, is in its securely locking when closed and simultaneously drawing the meeting rails closely together All the movements are accomplished by cams without the instrumentality of springs, thus avoiding the possibility of getting out of order.



IVES' PATENT BURGLAR PROOF SASH LOCKS AND MORTISE BOLTS are made under TWELVE PATENTS, but are no more expensive than many of the more common bolts and sash fasteners now on the market.

ARE MANUFACTURED IN ALL

STYLES OF FINISH.

Prices on Application to

JOHN H. GRAHAM & CO., AGENTS,

113 Chambers and 95 Reade Streets, New York.

P. O. BOX 1042. Cable Address, "GRAHAINES."

WM. H. JACOBUS,

Hardware Mfrs. Agent,

90 CHAMBERS ST., NEW YORK.

AGENT FOR

THE IRELAND MFG. CO.
J. F. WOLLENSAK.
LORENZ BOMMER.
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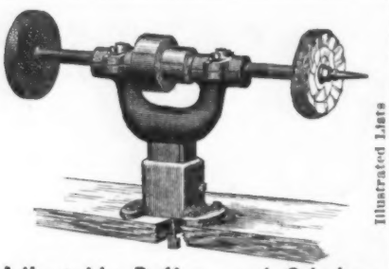
PALMER'S COMMON-SENSE PULLEY.
BURNSIDE CEDAR FAUCET.
ZIMMERMAN'S BLIND ADJUSTER.
ARROW BRAND AUGER AND BIT.
BOSTON STEEL NAIL, 3d FINE.
BARLOW'S HOOK DOOR SPRING.
J. W. BOUGHTON WINDOW AND DOOR SCREENS.



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Adjustable Buffers and Grinders,

SPINNING LATHES, CIRCULAR SAWS, &c.

P. PRYIBIL, 467 W. 40th St., New York.

J. STEVENS'

Arms & Tool Co.

P. O. BOX 316,

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MANUFACTURERS OF

Spring Calipers

—AND—

DIVIDERS.

FINE

MACHINISTS' TOOLS and FIREARMS.

—OUR—

Shooting Gallery Rifle

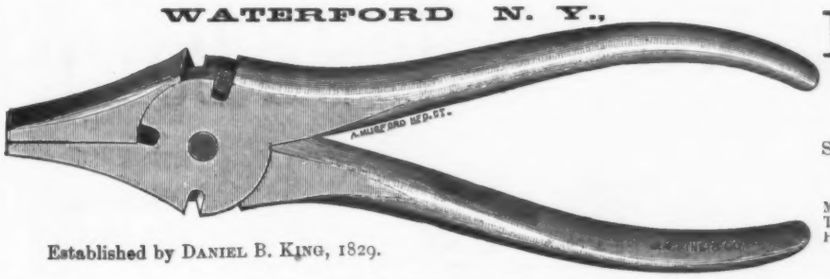
Is the Favorite Everywhere.

Send for ILLUSTRATED CATALOGUE.

Stoddard's Caliper and Divider.

J. M. KING & CO.,

WATERFORD N. Y.



Established by DANIEL B. KING, 1829.

Manufacturers of

BUTTON'S

Pat. Wire Cutter

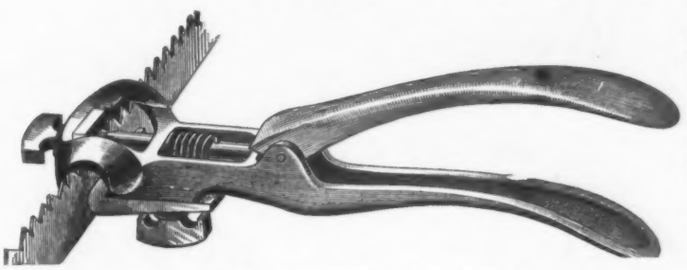
AND PLIER COMBINED.

Specially Adapted for Use on Wire Fence.

Also Manufacturerers of BLACKSMITHS' and MACHINISTS' STOCKS and DIES, PLUG anp TAPER TAPS, HAND, NUT and SCREW TAPS, PIPE TAPS and REAMERS.

Price List on Application.

MORRILL'S PERFECT SAW-SETS.



On the application by the administratrix of the estate of the late Asa Farr, for the appointment of a receiver, the New York Supreme Court decided that the business in saw-sets carried on by Mr. Charles Morrill, at 64 College Place, since the death o Mr. Farr, belonged to the Farr estate—the court saying:

"After Farr's death Morrill could not seize upon the books office and assets of Farr's businessand by an usurpation of owner ship undertake to substitute himself in Farr's place in the busi ness the latter had built up."

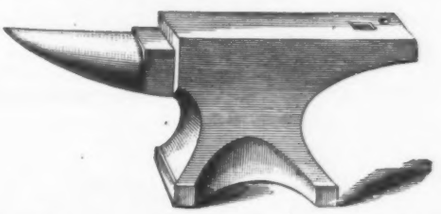
Under the instructions of the court I shall continue the manufacture and sale of the Morrill saw-set.

CHAUNCEY S. TRUAX, Receiver in FARR vs. MORRILL,
64 College Place, New York City.

Peter Wright's Patent Solid Wrought Anvil.

PETER WRIGHT PATENT SOLID WROUGHT

Fac-simile of Trade Mark.



Fac-simile of Green Label.

By Royal Letters Patent.
V. R.
PETER WRIGHT'S
SOLID WROUGHT
ANVIL
Made of Best Scrap Iron!
THE BICK FACE AND END ALL IN ONE SOLID PIECE!

The high reputation attained by these Anvils has led makers of an inferior anvil to imitate the brand, with the view of thereby more readily marketing their goods. The trade is cautioned in buying to see that each anvil is stamped with the full trade mark on one side and has the green label affixed to the other; fac-similes of both are shown above.

Warranted Better than the Best

ENGLISH ANVIL

Face in one piece of BEST TOOL CAST STEEL, PERFECTLY WELDED, perfectly true, of hardest temper, and never to come off or "settle." Horn of tough *untempered steel*, never to break or bend. *Only Anvil made in United States fully warranted as above.*

FISHER DOUBLE-SCREW VISE

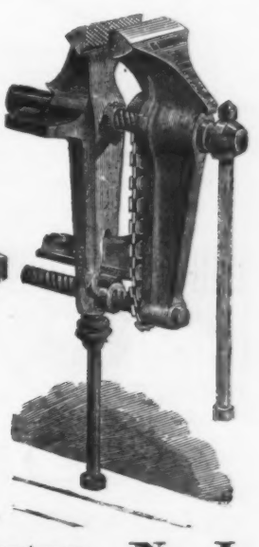
IS FULLY WARRANTED STRONGER THAN ANY OTHER LEG VISE, AND ALWAYS PARALLEL. Is the best Vise for Machine Shops and Blacksmiths, and for all heavy work. ACCURATE AND DURABLE. Send for Circular.

ESTABLISHED 1843.

MORE THAN 200 DIFFERENT PATTERNS.

None Genuine without our Trade-Mark,

EAGLE and "FISHER" Stamp.



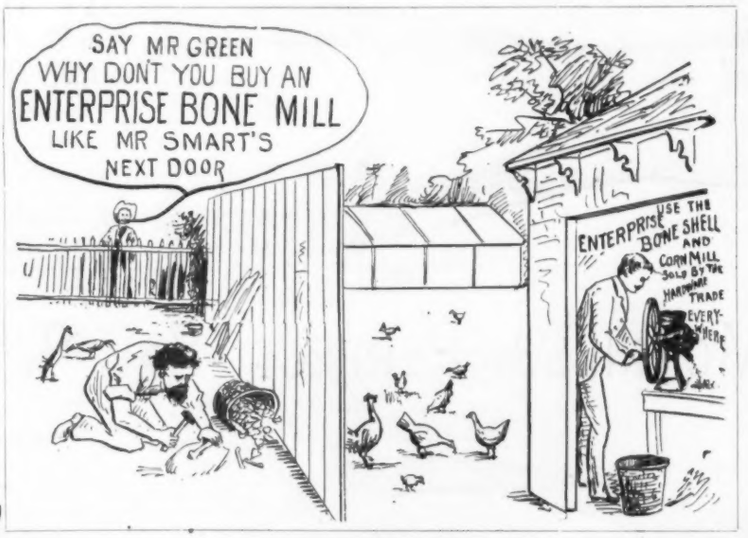
EAGLE ANVIL WORKS, - Trenton, N. J.

ENTERPRISE M'F'G CO.,

Third and Dauphin Streets,
PHILADELPHIA, PA.

SPECIALTIES :

Mrs. Potts' Cold Handle Sad Irons,
Lawn Mowers,
Coffee Mills,
Bone Mills,
Measuring Faucet,
Bung-Hole Borers,
Tobacco Cutters,
&c., &c.



SPECIALTIES :

Meat Choppers,
Sausage Stuffers,
Fruit Presses,
Cherry Stoners,
Cork Pressers,
Tincture Presses,
Beef Shavers,
Cheese Knives,
&c., &c.

Enterprise Pulverizing Mills.

Made in Six Sizes.

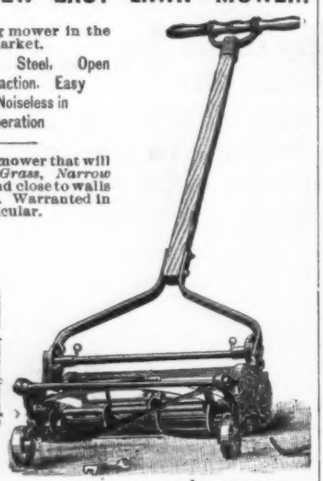
SEND FOR ILLUSTRATED CATALOGUE.

THE NEW EASY LAWN MOWER.

The leading mower in the market.
Front Cut. Steel. Open Roller Traction. Easy and Noiseless in Operation

The only mower that will cut *Wet Grass, Narrow Borders*, and close to walls and fences. Warranted in every particular.

Manufactured by
BLAIR MFG. CO.,
Springfield, Mass.



MEDIUM SIZE "NEW EASY."

THE NEW MODEL,

OUR
LATEST and BEST
MOWER.

For Simplicity and durability, and quality of work, it is unequalled, while for Lightness of draft it excels by a large percentage any other Lawn Mower made. Send for circular and price-list.

CHADBORN & COLDWELL MANUF'G CO.,
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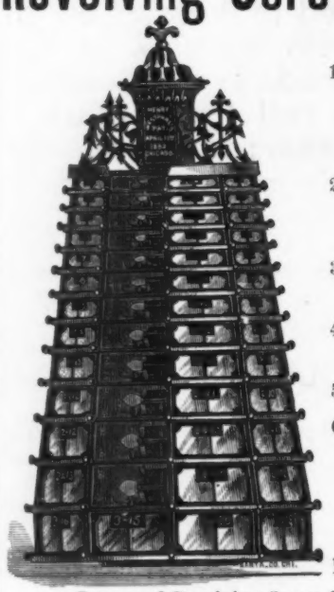
WESTPHAL'S IMPROVED

Revolving Screw Bolt & Shot Cases.

Advantages in Using.



1st—It is impossible to mix the different sizes of screws, bolts or shot. This is *a very important point*, and cannot be claimed in any other construction for holding these goods.

2nd—Only those behind the counter have access to the contents of the cases, thus preventing customers from helping themselves.

3rd—The condition and amount of stock is shown at a glance.

4th—They will save much space and many feet of shelving in any store.

5th—Any size can be found instantly.

6th—In addition to their great usefulness, they will ornament the counters of any store, for in these cases, utility, strength and beauty are combined.

Those who have used them say they would not part with them for many times their cost.

Improved Revolving Screw Case. Made Entirely From Iron and Glass.

SEND FOR ILLUSTRATED CIRCULARS.

— MANUFACTURED BY —

SCHENCK'S ADJUSTABLE FIRE BACK CO.

(Successors to HENRY WESTPHAL),
94 MARKET STREET, CHICAGO, ILL.

G. T. MOORE, 103 Chambers St., New York,
Agent for New York and New England States.

This advertisment appears every other week.

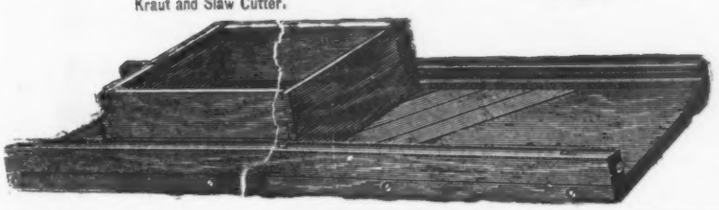
TUCKER & DORSEY MFG. CO., INDIANAPOLIS, U. S. A.

—MANUFACTURERS OF—

WOODENWARE AND HARDWARE SPECIALTIES.

Daisy Stove Truck.

Kraut and Slaw Cutter.



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THE SWIFT MILL.

ESTABLISHED 1845.

The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental, and workmanship of the very best. We make more than 30 styles.

Lane's Measuring Faucet.

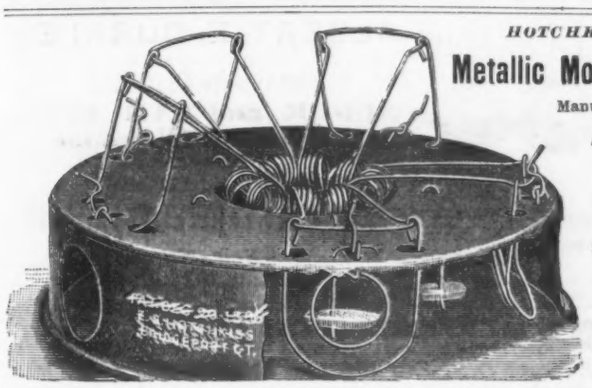
LANE'S PATENT STEEL DOOR HANGER.

The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. **LANE'S PATENT TRACK** is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

Manufactured by LANE BROS., Poughkeepsie, N. Y.

JOHN H. GRAHAM & CO., General Agents, 113 Chambers Street, NEW YORK.



HOTCHKISS PATENT

Metallic Mouse & Rat Traps.

Manufactured by

E. S. Hotchkiss,

BRIDGEPORT, CONN.

Both Self-Setting.

Send for Illustrated List. Samples by mail, 15c. and 25c. respectively.

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NEW YORK.

AXLEINE

is a fine quality of Axle Grease, put up in square tin boxes containing one pound; beautifully decorated in assorted colors; designed especially for the Hardware Trade. Showy and attractive shelf goods.

Send for sample and prices.

LOVELL, TRACY & CO., 71 Asylum St., Hartford, Conn.

Porcelain Lined Lemon Squeezers

Best Common Mouse Traps, Steak Hammers, Boot Jacks Lap Boards, Beacon Hill Pat. Mouse Traps, Mallets, Bung Starters, Hand Screws.

Ripley Mfg. Co., Unionville, Conn

The F. F. ADAMS CO.,

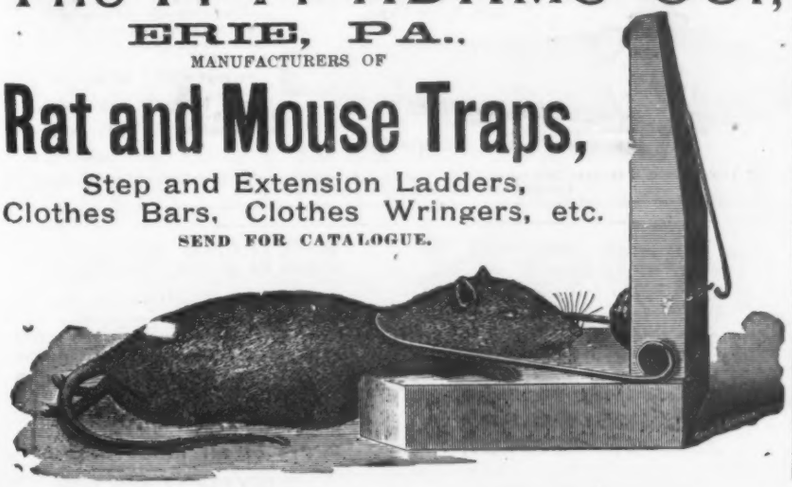
ERIE, PA.,

MANUFACTURERS OF

Rat and Mouse Traps,

Step and Extension Ladders,
Clothes Bars, Clothes Wringers, etc.

SEND FOR CATALOGUE.



NEW UNION RAT TRAP.

The only Practical Self-Setter. SAMPLE TRAP FREE. Manufactured by

Sanford & Hawley, Unionville, Ct.

Knapp & Cowles Mfg. Co., Bridgeport, Conn.

James S. Conant & Co.,

FINE WOOD ENGRAVING.

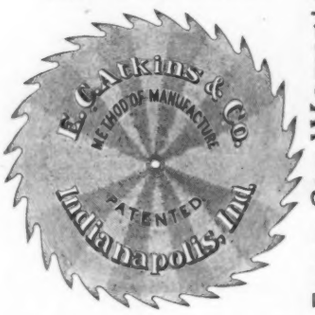
PRINTING, ELECTROTYPING

3 Franklin Street, Boston.

E. C. ATKINS & CO., Indianapolis, Indiana.

FINE SAWS A SPECIALTY.

CIRCULAR, BAND, GANG and CROSS-CUT SAWS.



Every Saw Warranted.

We were the first to introduce the best grade of Saws, among which are the

Tuttle Tooth, Diamond and Dexter,

and the Celebrated

SILVER STEEL DIAMOND.

The King of Saws.

Western Agents for Tanite Emery Wheels. *Write for Catalogue and Prices.*

HOLLOW THIN BACK.

STANDARD No. 24.

Extra Temper.
Superior Finish.
Patent Handle.

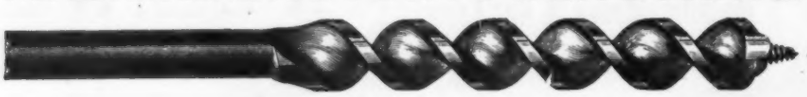
The best and cheapest Hand Saw in the market.

LIST, $20 PER DOZEN.

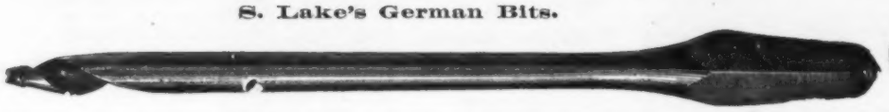
WHEELER, MADDEN & CLEMSON MFG. CO.,

Middletown, N. Y.

MACHINE BITS FOR POWER BORING.



S. Lake's German Bits.



ALBERT E. CURRIER

MANUFACTURER OF THE

Best Quality Cast-Steel

AUGER and CAR BITS,

Nut and Boring Machine Augers.

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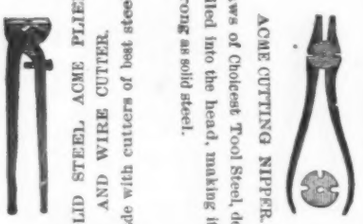
CHESTERFIELD FACTORY,

New Hampshire.

ACME CUTTING TOOLS.

Made in all Sizes.



SOLID STEEL ACME PLIER AND WIRE CUTTER. Made with cutters of best steel.

Jaws of Choicest Tool Steel, dove-tailed into the head, making it as strong as solid steel.

ACME CUTTING NIPPER.

HIGGANUM HARDWARE CO.,

HIGGANUM, CONN.

NEW SELF-SETTING PLANE

Sample sent for trial as per our Circular if local dealers do not keep it.

Gage Tool Co.,
Vineland, N. J.

JOHN SOMMER'S SON,

MANUFACTURER OF EVERY DESCRIPTION OF

WOODEN FAUCETS AND SPECIALTIES IN WOODEN WARE,

Storehouse and Yard: Central and Morris Aves., Dickerson and W. Monroe Sts.

Office and Factory: 8, 10 and 12 Pearl St., Newark, N. J.

The "Reliable" Cork Lined Faucets. Boiled in Pure Linseed Oil, and made out of Hard Sugar Maple.

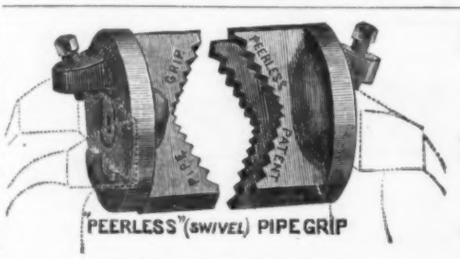
We are the oldest and largest Faucet House in the United States, making Faucets our specialty.

This Faucet cannot be equaled in quality at the price. Packed one size in a barrel.

Average weight per Bbl., 100 lbs.					
Nos.	0	2	4	6	8
Price	$0.75	.75	1.00	1.25	1.50
Bbls. contain about	30	27	24	15	14 doz.

DISCOUNT.—LESS 70%, 5% cash 10 days.

Special prices made if ordered in large quantity. Send for our fifty-page Illustrated and Descriptive Catalogue of everything in the Wood Faucet Line.



PEERLESS (SWIVEL) PIPE GRIP

Send for Illustrated Catalogue.

Made of Steel, Fits any Vise,

PRICE, $2.50 and $2.75.

Instantly converts *any Vise* into a first-class *Pipe Vise*, Holding Pipes, Thimbles, Couplings, Bolts, Nut &c., in *any position.*

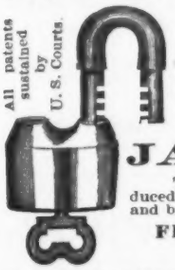
PRENTISS VISE CO.,

M'f'rs of all kinds of Vises,

23 DEY STREET, NEW YORK.

KEYSTONE LOCK WORKS,

LANCASTER, PA.



E. T. FRAIM,

Manufacturer of the Celebrated Patent Inter-Locking Tumbler

JAIL PADLOCKS,

The only durable low-priced Scandinavian padlock ever produced. 34 different grades and sizes, all malleable iron. Red, black and bright brown Japanned.

FLAT STEEL KEY LOCKS A SPECIALTY.

Write for New Illustrated Catalogue and Discounts.

TOWER & LYON, GENERAL AGENTS, 95 CHAMBERS STREET, NEW YORK.

THE BOSTON KNOB CO.,

MANUFACTURERS OF FINE DOOR KNOBS,

No. 169 HIGH STREET,

GEO. F. WHITING, (FORT HILL SQUARE.)

President and Manager.

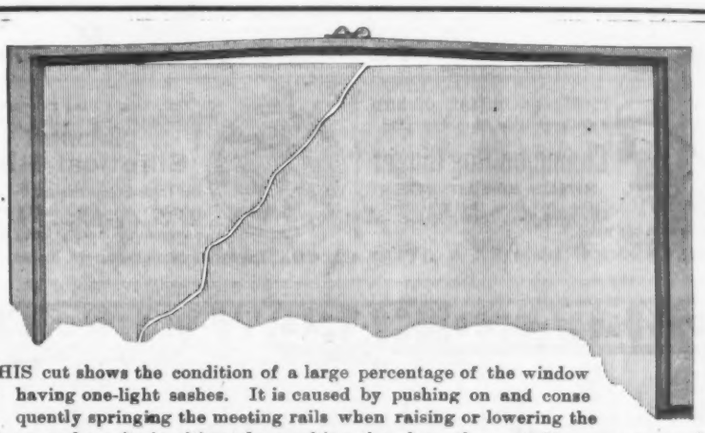
THE peculiar qualities of the Knobs made by the Boston Knob Company are, their great *strength, beauty* and *durability.*

Unlike all others, they improve in appearance, while bronze, brass or wooden knobs commence to depreciate as soon as used. The Knobs manufactured by this Company do not require cleaning or polishing.

They are furnished in a variety of colors to harmonize with the finish or decoration of rooms.

They are warranted to wear as long as any knob made. This Company use the *New Boston Spindle.*

Send to the office of the Company for prices, or to any leading wholesale hardware dealer.



THIS cut shows the condition of a large percentage of the window having one-light sashes. It is caused by pushing on and consequently springing the meeting rails when raising or lowering the windows, and results in ultimately cracking the glass, thus entailing an expense for repairs greater than the cost of applying Wigger's Patent Sash Lifters. These Sash Lifters obviate this trouble and also prove a great convenience in operating this class of windows, as previously described in the columns of *The Iron Age.*

The steadily increasing demand for these goods proves their utility, and also that both Architects and their Clients appreciate their merits, and that many Architects have specified them on buildings to be completed this fall. We shall be pleased, therefore, to send samples, sample cards and circulars (with blank space for dealers' name), on application, as the goods will be supplied exclusively through the Builders' Hardware Trade.

WRITE FOR PRICE LISTS, &c.

BRAINERD & CO.,

MANUFACTURING AGENTS,

97 Chambers St., New York.

ELIZABETHPORT STEAM CORDAGE CO.,

Manufacturers of the Standard

TRADE MARK E

BINDER TWINE

TRADE MARK E

Also CORDAGE of all Kinds

46 South Street, NEW YORK.

IVES' PATENT. SASH LOCK.

MANUFACTURED ONLY BY

BELL TIP ORNAMENTAL.

H. B. Ives & Co. NEW HAVEN, CONN.

Security Sash Lock

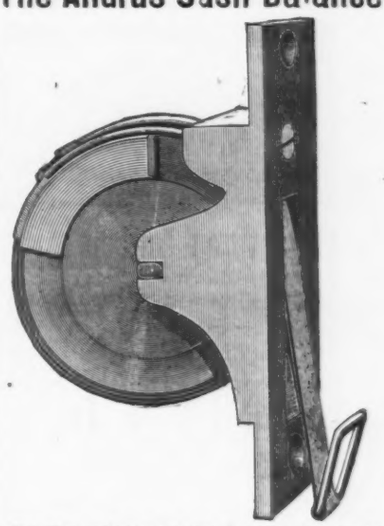
Patented Nov. 9,'86.

Anti- Rattler.

The Claflen Mfg. Co.,

Cleveland, Ohio, S. A., Sole Manufacturers.

The Andrus Sash Balance

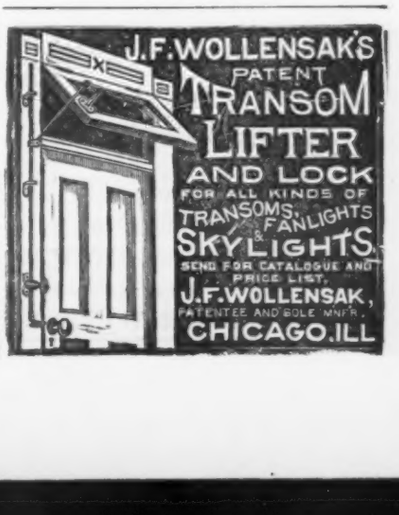


The only perfected balance for sash that can be regulated with a brake to carry sashes of various lengths and weights. It is no more expensive than weights and cords and much less for heavy windows. It is equally adapted to new or old windows. Send for circular of Andrus Sash Balance and Rose Ventilating and Sash Locks, &c.

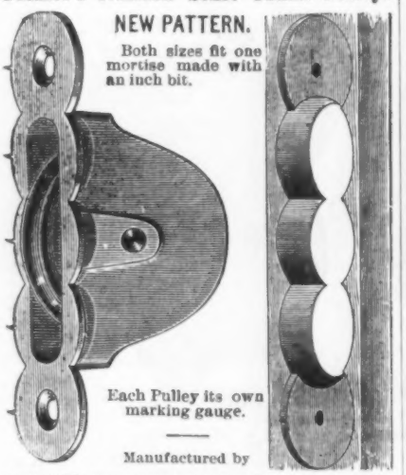
WM. H. CALDWELL,

Successor to ANDRUS MFG. CO.,

Rochester, N. Y.



Palmer's Common Sense Frame Pulley.



NEW PATTERN.

Both sizes fit one mortise made with an inch bit.

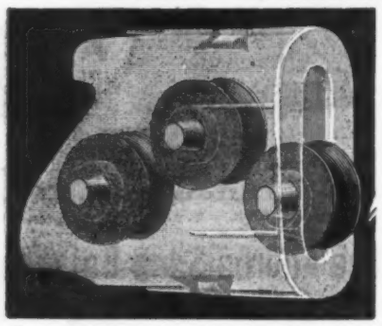
Each Pulley its own marking gauge.

Manufactured by

PALMER HARDWARE MFG. CO., Troy, N. Y.

Sole Eastern Agts., Peabody & Parks, Troy, N. Y.

IDEAL SASH PULLEYS.

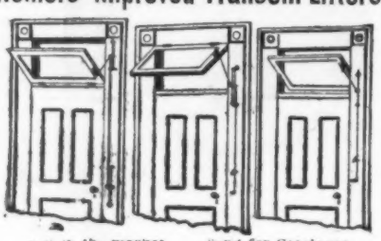


From two to six of the Ideal can be applied to one of any other make on the market. A great saving of time and money to contractors and carpenters. Marking Gauges furnished with each lot of pulleys. Send for circular and price.

STOVER MFG. CO,

Freeport, Ill.

Reihers' Improved Transom Lifters



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IMPROVED ADJUSTABLE WINDOW SCREEN,

with box panels. *The only one finished alike on both sides*, and both durable and cheap. Also a new frame for window screens and a new pattern of corners for both windows and doors, with sticks for frames.

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Manufacturers of

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REFRIGERATOR DOOR FASTENERS,

HINGES AND OTHER

Refrigerator Trimmings

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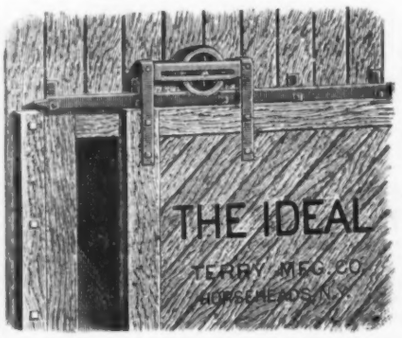

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SURE TO PLEASE THE TRADE.

Works very easy. Is STRONG, and combines ALL the BEST Features of an Anti-Friction Hanger.

4-inch Wheel, 6 foot Run, $15.00 per doz. prs.
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Would be Glad to Quote you Prices.

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Solid Braided Lines for Window Cord, Railroad Bell Cord, Masons' Lines, Garden Lines, Clothes Lines, &c., &c. Send for Samples.

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SABIN'S LEVER DOOR SPRINGS

Coil, and Sabin's Volute Springs

For various purposes made to order.

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The Champion Safety Sash Locks.

HALF SIZE.

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These locks are being received with universal and enthusiastic approval by Architects, Builders, and Hardware Dealers everywhere. All bear testimony to their unequalled merits.

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CLOSES ON OUTSIDE OF NOSE

Only Double Ring Invented.

Champion Hog Ringer

RINGS and HOLDER.

The only Ring that will effectually keep Hogs from rooting. No sharp points in the nose.

Only single Ring ever invented that closes on outside of the nose.

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Elliptical Ring

and Triple Groove Hog and Pig Ringer

Only single Ring that *closes on the outside of the nose.* No sharp points in the flesh to keep it sore.

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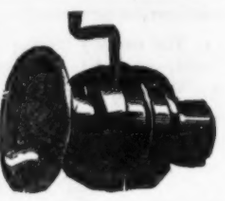

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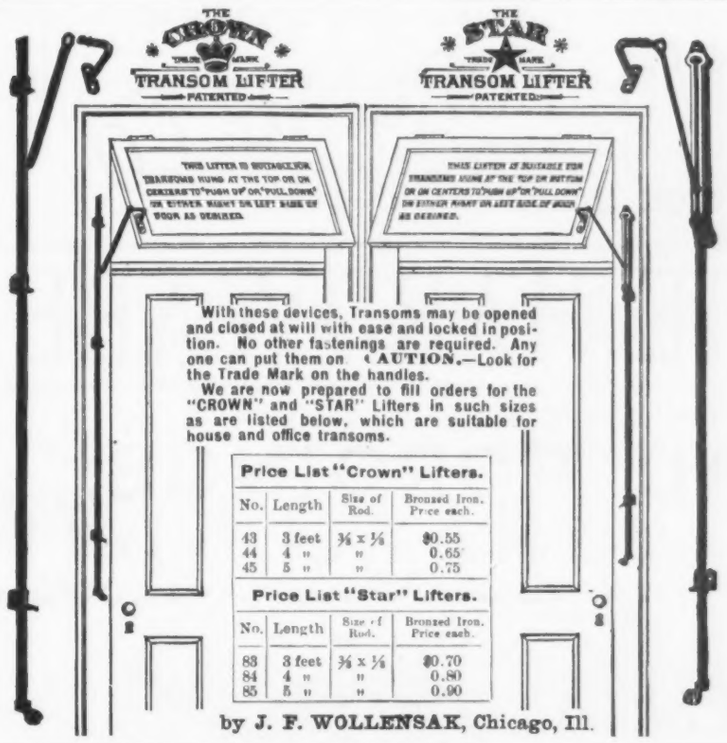

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No.	Length	Size of Rod.	Bronzed Iron. Price each.
43	3 feet	⅜ x ⅛	$0.55
44	4 "	"	0.65
45	5 "	"	0.75

Price List "Star" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
83	3 feet	⅜ x ⅛	$0.70
84	4 "	"	0.80
85	5 "	"	0.90

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THE PEERLESS RUBBER WINDOW CLEANER

8 inch, per doz	$4.20	14 inch, per doz	$6.00
10 inch, "	4.80	16 inch, "	7.50
12 inch, "	5.40	18 inch, "	9.00

LIBERAL DISCOUNT TO THE TRADE.

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We own all the Patents. Beware of Infringements.

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Simple in construction, strong and not liable to get out of order.

The Double Swing are always **Right Side up.** The frames and sockets are made of one piece, without rivets or solder.

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Prices Quoted on Application.

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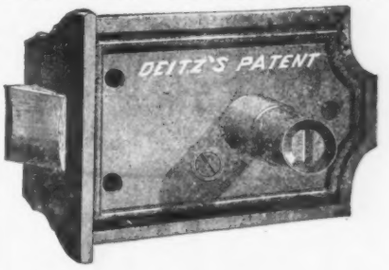

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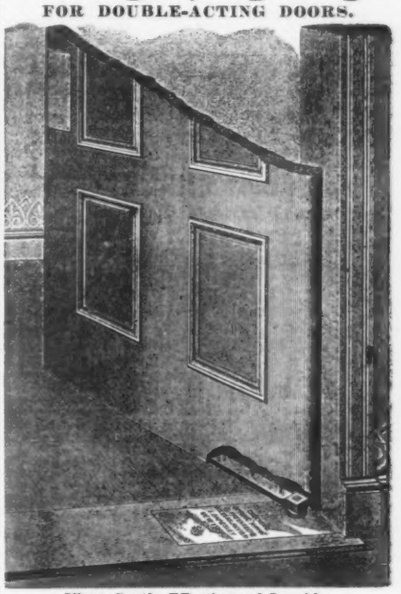

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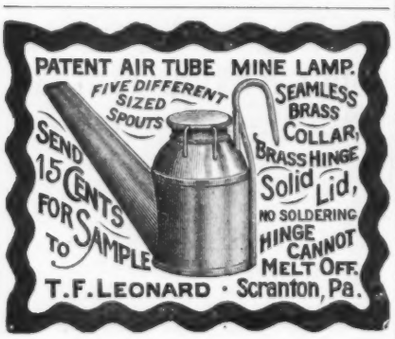

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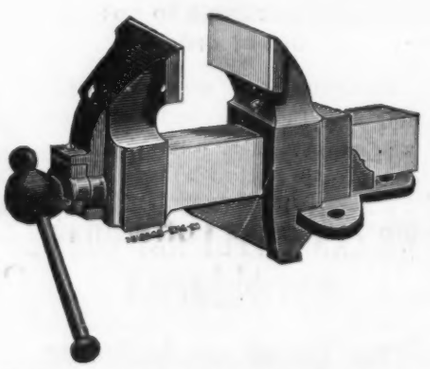

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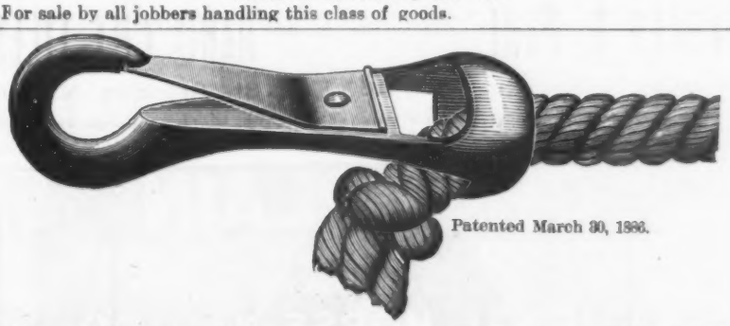

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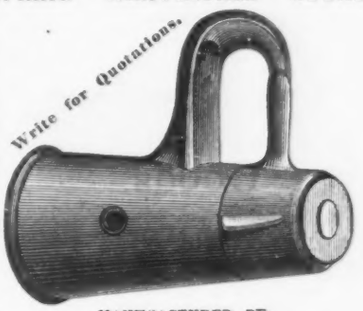

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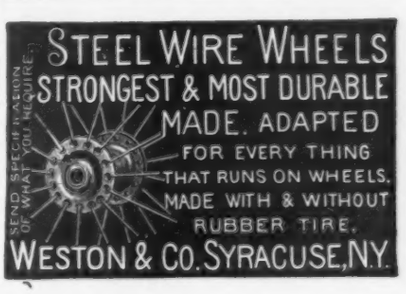

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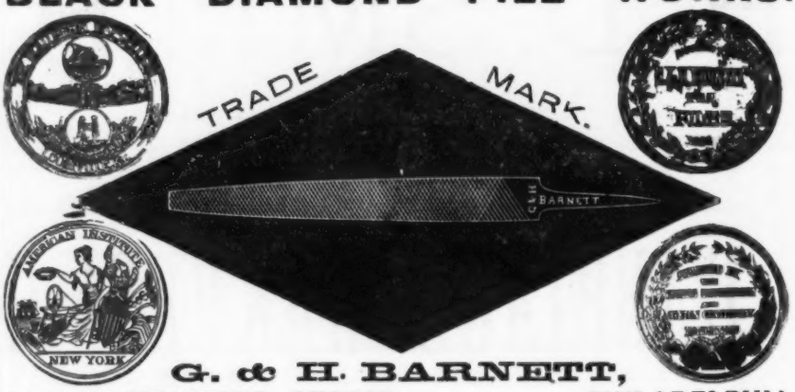

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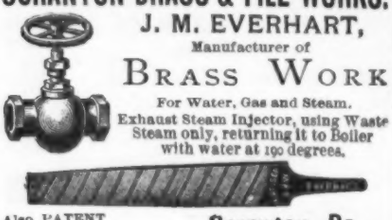

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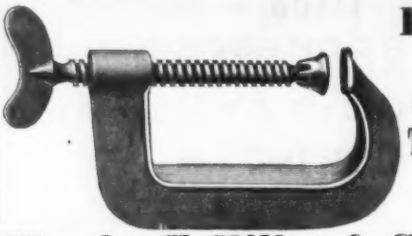

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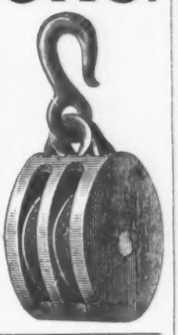

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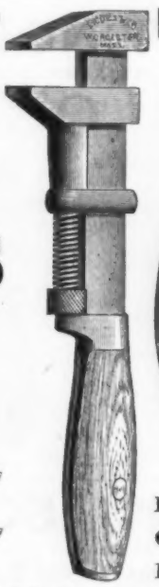

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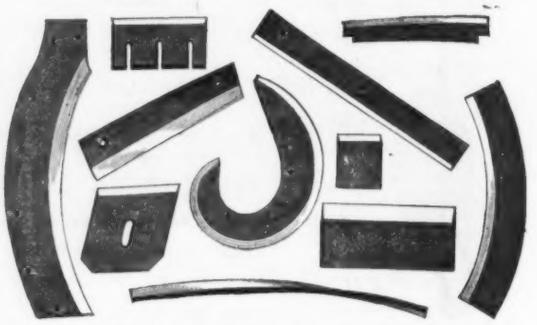

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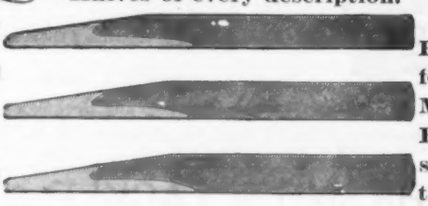

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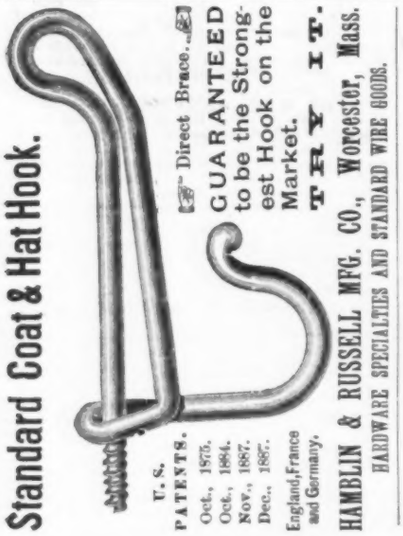

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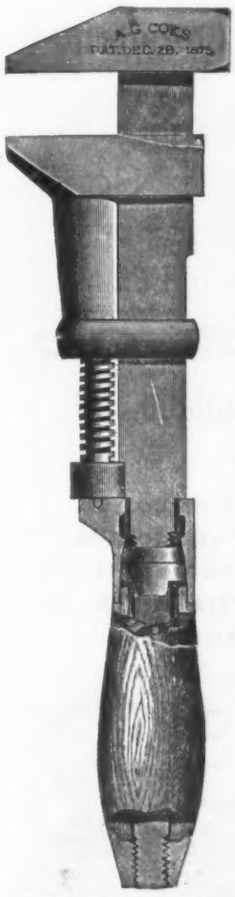

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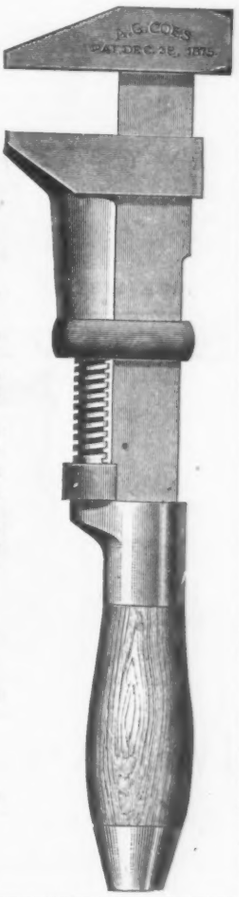

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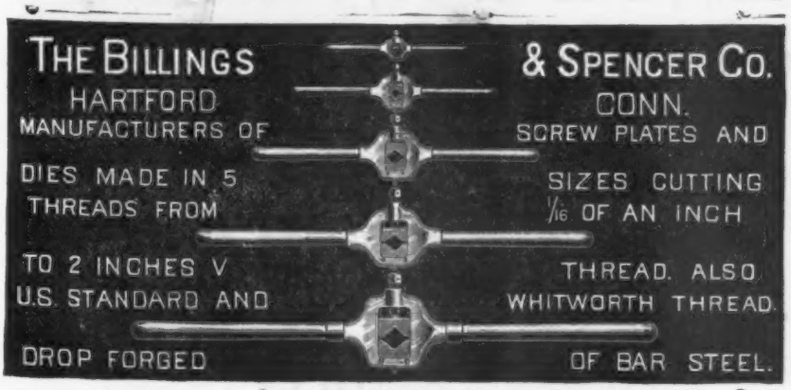

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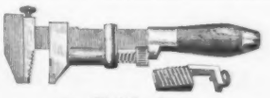

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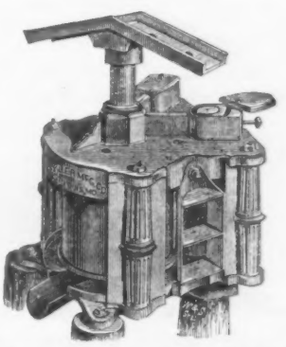

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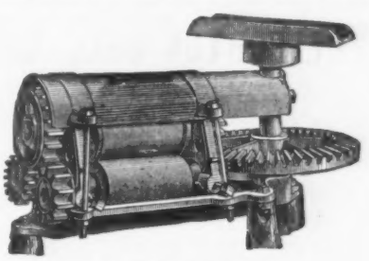

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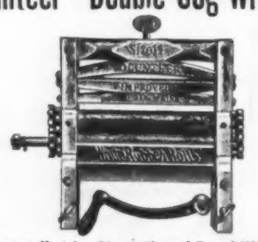
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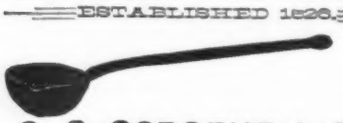
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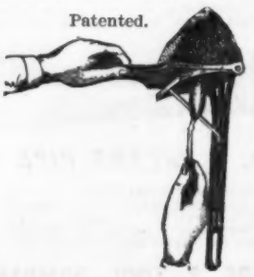
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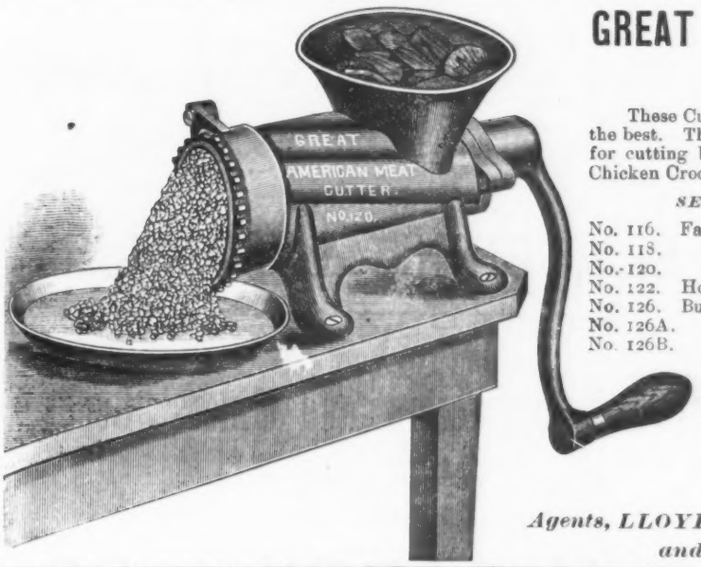

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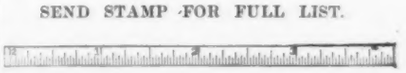

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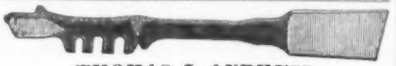

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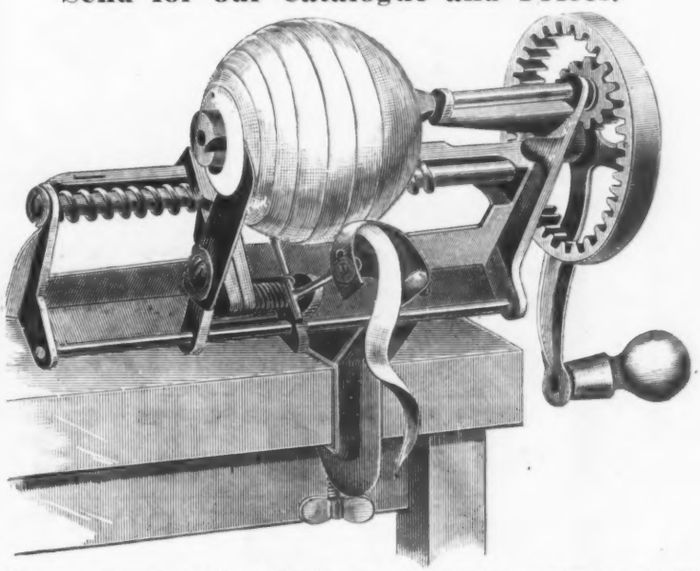

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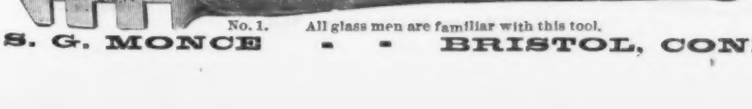

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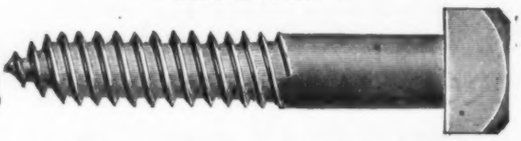

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Merchant & Co., Philadelphia, Pa.
Phillips F. R., Philadelphia, Pa.

Band Saws.
Prybil P., 467 W. 40th st., N. Y.

Bankers.
Gallaudet P. W. & Co., 2 Wall, N. Y.

Barb Wire & Fence.
Continental Wire Co., St. Louis, Mo.
Gautier Steel Dept. of Cambria Iron Co., Johnstown, Pa.
Hawkeye Steel Barb Fence Co., Burlington, Ia.
Iowa Barb Wire Co., 98 Reade, N. Y.
Kelly Barb Wire Co., Chicago, Ill.
Washburn & Moen Mfg. Co., Worcester.

Bellows, *Manufacturers of.*
Bullock T. H., Cleveland, O.
Scott Geo. M., Chicago, Ill.

Bells.
Barton Bell Co, East Hampton.

Bells (Sleigh).
Bevin Bros. Mfg. Co., Easthampton.

Belting, *Make s of.*
Alexander Bros., 412 N. 3d, Phila.
Jeffrey Mfg. Co., Columbus, O.
Main Belting Co., Philadelphia, Pa.
N. Y. Belting & Packing Co., N. Y.
Page Belting Co., Concord, N. H.
Schieren, C. A. & Co., 47 Ferry St., City.

Bird Cages, *Makers of.*
Lindeman O. & Co., 81 Beekman, N. Y.
Maxwell John, 247 and 249 Pearl, N. Y.

Bits and Braces.
American Bit Brace Co., Buffalo, N. Y.
Amidon & Bastedo, Buffalo, N. Y.
Backus Q. S., Winchendon, Mass.
Currier Albert E., Chesterfield, N. H.
Saxton E. R., Buffalo, N. Y.

Blacksmiths' Drills.
Buffalo Forge Co, Buffalo, N. Y.

Blinds and Blind Awnings.
F. O. North & Co., Boston, Mass.

Blocks, Tackle, *Makers of.*
Boston and Lockport Block Co.
Cleveland Block Co., Cleveland, O.
McCoy & Salders, 26 Warren st., N. Y.
McMillan Wm. B., 113 South, N. Y.
Moore Mfg. Co., Chicago, Ill.
Saubert & Cottingham, Phila.
Union Hardware Co., Torrington, Conn.

Blotter Baths.
Beardsly Blotter Bath Co., Cleveland, O

Blowers.
Buffalo Forge Co., Buffalo, N. Y
Champion Blower and Forge Co., Lancaster, Pa.
Sturtevant B. F., Boston, Mass.
U. Baird Machinery Co, Pittsburgh, Pa.

Boiler Plates.
McIlvain Wm. & Sons, Reading, Pa.

Boiler Tubes.
Syracuse Tube Co., Syracuse, N. Y.
Morris, Tasker & Co., 324 South Third Street, Phila,

Boilers, Steam.
Babcock & Wilcox Co, 30 Cortlandt.
Broomell & Sauks, York, Pa.
Edge Moor Iron Co., Wilmington.
Newell Universal Mill Co., N. Y.
Pollock W. B. & Co., Youngstown, O.
Wetherill Robt. & Co., Chester, Pa.

Bolt and Rivet Clippers.
Chambers Bros. & Co., Philadelphia.

Bolt and Screw Cases.
Schenck's Adjustable Fireback Co., Chicago, Ill.

Books.
Lamberson, B., Portland, Or

Bolt Cutters.
Howard Iron Works, Buffalo, N. Y.
Wells Bros. Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Brass, *Manufacturers of.*
Ansonia Brass & Copper Co., N. Y.
Bridgeport Brass Co., 19 Murray, N. Y.
Davol John & Sons, 100 John, N. Y.
Holmes, Booth & Haydens, N. Y.
Plume & Atwood Mfg. Co., N. Y.
Rome Brass and Copper Wks., Rome.
Scoville Mfg. Co., 421 Broome, N. Y.
Waterbury Brass Co., 396 B'way, N. Y

Brass Butt Hinges.
Tiebout W. & J., N. Y.

Brass Founders.
Deoxidized Metal Co., Bridgeport.
Reeves Paul S., Philadelphia
Stewart Mattson Mfg. Co., Phila.

Brass Goods.
Brass Goods Mfg. Co., N. Y.

Bridge Builders.
Berlin Iron Bridge Co., East Berlin, Ct.

Butcher and Shoe Knives. *Manufacturers of.*
Goodell Co., Antrim, N. H.
Wilson John, Sheffield, England.

Butts and Hinges.
Sabin Machine Co., Montpelier, Vt.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.

Calipers and Dividers.
Richardson C. F., Athol, Mass.
J. Stevens Arms and Tool Co., Chicopee Falls, Mass.
Starrett L. S., Athol, Mass.

Cane Mills.
Oyler, Geo. K., St. Louis, Mo.

Can Makers' Tools and Machines.
Crosby G. A. & Co., Chicago.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Car Axles.
Roberts A. & P. & Co., Phila.

Car Wheels.
Fowler Steel Car Wheel Co, Chicago, Ill.
Whitney, A. & Sons, Philadelphia.

Carriage Hardware. *Makers of.*
E. D. Clapp Mfg. Co., Auburn, N. Y.
Scranton Forging Co., Scranton, Pa.
Smith H. D. & Co, Plantsville, Conn.
Woodruff, Miller & Co., Mt. Carmel, Ct.

Castings, Iron and Steel.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
S. Cheney & Son, Manlius, N. Y.
Chester Steel Casting Co., Phila.
Cleveland Foundry Co, Cleveland, O.
Eureka Cast Steel Co, Chester, Pa.
Flagg Stanley G. & Co., Phila.
Haight & Clark Albany, N. Y.
Hammer & Co., Branford, Conn.
I. S. Spencer's Sons, Guilford, Conn.
Johnson L. G. & Co., Spuyton Duyvil.
Morris, Tasker & Co, 224 South Third Street, Phila.
Myers, Osborn & Co., Cleveland, O.
New Howe Mfg. Co., Bridgeport.
North Brothers Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Palmers & De Mooy, Cleveland, O.
Pittsburgh Steel Casting Co. Pittsburgh.
Pratt & Letchworth, Buffalo, N. Y.
Sessions Foundry Co, Bristol, Conn.
Sharon Steel Castings Co., Sharon, Pa.
Shepard Hdw. Co., Buffalo, N. Y
Springfield Fdry. Co., Springfield.
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry, Syracuse.
Syracuse Mall. Iron W'ks, Syracuse.
Taylor & Boggis Fdry Co., Cleveland.
Vulcan Iron Works, New Britain, Conn.
Thos. D. West Fdry Co., Cleveland, Ohio.
Wetherill Robt. & Co., Chester Pa.

Cement.
Johnson & Wilson, 91 Liberty, N. Y.

Chains.
Bradlee & Co., Philadelphia.
Wm. H. Bassell Co., Pawtucket, R. I.

Chemicals.
Eimer & Amend, 205 Third av., N. Y.

Chemical Iron Works.
Gray's Ferry Foundry and Boiler Co., Philadelphia, Pa.

Chisels, *Manufacturer of.*
Buck Bros., Millbury, Mass.
Jennings C. E., 79 Reade N. Y.

Chucks.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
D. E. Whiton Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.
Woodruff, Miller & Co., Mt. Carmel, Ct.

Clothes Dryers.
Empire Wringer Co., Auburn, N. Y

Coal.
Borden & Lovell, 70 West N. Y
Nicolls, W. J. & Co., 35 Broadway, N. Y.
Pardee A. & Co., 111 Broadway, N. Y.

Coat and Hat Hooks.
Hamilton & Russell Mfg., Co., Worcester, Mass.

Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia.
Lane Bros., Poughkeepsie, N. Y.

Coke.
Connellsville Coke & Iron Co., Phila.
Schoonmaker J. M., Pittsburgh.

Commission Merchants, Iron, Steel, &c.
Howard Childs & Co., Pittsburgh.
Knapp & Hague, 52 Fulton, N. Y.

Copper.
New Haven Copper Co., Pearl, N. Y.
Rome Brass and Copper Works, Rome, N. Y.

Cordage.
Elizabethport Steam Cordage Co., 46 South, N. Y.
Totman, J. P. & Co., Boston, Mass.

Corrugated Iron.
Berlin Iron Bridge Co., E. Berlin, Ct.
Cincinnati Corrugating Co., Cinn., O.
Knisely & Miller Bros., Chicago, Ill.
Lloyd Iron Roofing & Paint Co, Chicago, Ill.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.
Sagendorph Iron Roofing and Corrugating Co., Cincinnati, Ohio.
Standard Iron Co., Bridgeport, Ohio.

Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 8th, N. Y.
Shields & Brown Co., Chicago, Ill.

Cranes.
Sellers, Wm. & Co., Philadelphia, Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cutlery, *Importers of.*
Clatworthy, F. & W., N. Y
Dame, Stoddard & Kendall, Boston, Mass.
Field, Alfred & Co, N. Y.
Gurney, F. B., 116 Chambers St., N. Y.

Cutlery, *Manufacturers of.*
Bingham, W. & Co., Cleveland, Ohio.
Goodell Co., Antrim, N. H.
Healy, C. J. & Co., 26 Warren, New York.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Dampers.
Shepard Hardware Co., Buffalo, N. Y.

Daubers
Peabody & Parks, Troy, N. Y.

Door Checks.
Bardsley, J., 59 Elm St., New York.

Door Hangers, House and Barn.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. Co., Chicago, Ill.
Stearns, E. C. & Co., Syracuse, N. Y.
Terry Mfg. Co., Horseheads, N. Y.

Door Knobs.
Boston Knob Co., Boston, Mass.

Door Springs.
Paine, A. W., Peaboy, Mass.

Drilling Machines.
Dallett Thos. H. & Co., Philadelphia
Dwight Slate Machine Co., Hartford Conn.
Illinois Iron & Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Sigourney Tool Co., Hartford, Conn.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Universal Radial Drill Co., Cinn.

Drills, Upright.
Currier & Snyder, Worcester, Mass.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Billings & Spencer Co., Hartford, Ct.
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Scranton Forging Co., Scranton, Pa.
Williams, J. H. & Co., Brooklyn, N. Y.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Beecher & Peck, New Haven, Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Edward Storm Spring Co. Poughkeepsie, N. Y.

Edge Tool Makers.
Black, H. B & Co., Chester, Pa.

Edge Tools, *Makers of.*
White, L. & I. J., Buffalo, N. Y.

Egg Poachers.
Paine, Diehl & Co., Philadelphia.

Electrical Supplies.
Wollensak, J. F., Chicago, Ill.

Electric Bells.
Ostrander, W. R. & Co., New York.

Electric Lighting.
The Brush Electric Co., Cleveland, O.
Waterhouse Electric & Mfg. Co. Hartford, Conn.

Electric Dynamo Machines.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct

Elevators, *Makers of.*
Morse, Williams & Co., Phila., Pa.
Stokes & Parrish Elevator Co., Philadelphia, Pa.

Emery Paper, Cloth, &c.
Walpole Emery Mills, S. Walpole, Mass

Emery Wheels.
New York Belting and Packing Co. 15 Park Row, N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Springfield Glue and Emery Wheel Co., Springfield, Mass.
Sterling Emery Wheel Co., 17 Dey Street, N. Y.
The Tanite Co., Stroudburg, Pa.
Waltham Emery Wheel Co. Waltham, Mass.

Engineering Implements & Supplies.
Queen & Co., Philadelphia, Pa.

Engineers.
Gordon Strobel & Laureau, Phila.

Engineers and Contractors.
Laughlin, A. & Co., Cleveland, O.
Lean & Blair, Pittsburgh, Pa.
McClure & Shuler, Pittsburgh, Pa.
McKenna, Ryan & Sons, Pittsburgh.
Roberts, Frank C., Philadelphia, Pa.
Robinson, Wm. H., Philada, Pa.
M. V. Smith, Pittsburgh, Pa.
Stein & Schwarz, Philadelphia, Pa.
Swindell Construction Co. Pittsburgh, Pa.
Waite & Van Harlingen, Phila. Pa.

Engines, Gas.
Clerk Gas Engine Co., Phila., Pa.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam. *Makers of.*
Climax Mfg. Co., Corry, Pa.
Farquhar, A. B. & Son, York, Pa.
Harrisburg Car Mfg. Co., Harrisburg Pa.
Leffel Jas. & Co., Springfield, O.
Newell Universal Mill Co., 10 Barclay N. Y.
Payne B. W. & Sons, 49 Dey, N. Y
Russell & Co, Massillon, Ohio
Norwalk Iron Works Co., S. Norwalk
Todd Wm. & Co., Youngstown, O.
Valley Iron Works, Williamsport, Pa
Wetherill Robt. & Co., Chester, Pa.

Engravers and Printers.
Conant, J. S. & Co., Boston, Mass.
Kyes & Woodbury, Worcester, Mass.

Evaporators.
Oyler, Geo. K., St. Louis, Mo.

Exhaust Pipe Condensing Head.
Aller, Amos, 109 Liberty, N. Y.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn, N. Y.

Faucets, Self-Measuring.
Enterprise Mfg. Co., Philada., Pa.

Faucets, *Makers of.*
John Sommer's Son, Newark, N. J.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn

Fences, Wrought Iron.
Champion Iron Fence Co., Kenton, O.

Files, *Importers of.*
Montgomery & Co., 105 Fulton, N. Y.
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of.*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M. Scranton, Pa.
Jetter Mfg. Co., Buffalo, N. Y.
McCaffrey & Bro., Philadelphia.
Nicholson File Co., Providence, R. I.
Paul Chas. B., Williamsburg, N. Y.

Fire Brick, *Makers of.*
Birmingham Fire Brick Works, Birmingham, Ala.
Borgner & O'Brien, Philadelphia, Pa
Gardner James, Cumberland, Md.
Haws, A. J. & Sons, Johnstown, Pa.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer H. & Son, 420 E. 23d, N. Y.
Newton & Co., Albany, N. Y.
Ostrander James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine M. D. & Bro., Woodbridge.

(See Alphabetical Index, Page 82.

Fishing Tackle.
Field, J. B. & Co., Detroit, Mich.

Flint Garnet Paper.
Upton Geo., Boston, Mass.

Flour Sifters.
Fred. J. Meyers Mfg. Co., Covington, Ky.

Foreign Iron Merchants.
Jno G. Rollins, London England.

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y.
Bullock, T. H., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co. Lancaster, Pa.
Sturtevant B. F., Boston, Mass.

Forgings, Iron and Steel.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Miller Forge Co., Pittsburgh, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg Co., Cincinnati, O.

Foundry Riddles.
Estey W. S., 71 Fulton, N. Y.

Foundry Supplies.
Detroit Foundry Equipment Co., Detroit Mich.
S. Obermayer, Foundry Supply Mfg Co., Cincinnati, O.
Paxson J. W. & Co., Philadelphia.

Friction Clutches.
Hill Clutch Works, Cleveland, O.
Moore & White Co., Philadelphia, Pa.

Friction Pulleys.
Sandy Hill Iron and Brass Works, Sandy Hill, N. Y.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Furnace Hoists.
Stokes & Parrish Machine Co., Phila.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila, Pa.

Gears.
Grant, Geo. B., Boston, Mass.

Gear Cutters.
Grant, Geo. B., Boston, Mass.
D. E. Whiton Mach. Co., New London, Conn

Glass Cutters.
Andress, Thos. J., Philadelphia, Pa.
Monce, S. G., Bristol Conn.

Glue.
Le Page Liquid Glue and Cement Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.
Upton, Geo., Boston, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Gunpowder. *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hammers, Steam.
Bradley & Co., Syracuse, N. Y.

Hand Force Pumps.
Union Mfg. Co., 103 Chambers, N. Y.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field Alfred & Co., N. Y.
Jacobus, W. H. & Co., N. Y.

Hardware Manufactur
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Vaughan & Bushnell Mfg. Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H., 115 Chambers, N. Y.

Hardware Shelf Boxes.
Green S. H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit Brace Co., Buffalo, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Greene, Tweed & Co., N. Y.
Paine, Diehl & Co., Philadelphia, Pa.
Rex A. C. & Co., Philadelphia, Pa
Saxton E. R., Buffalo, N. Y.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Carriers.
Myers F. E. & Bro., Ashland, O.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hinges.
Union Mfg. Co., 103 Chambers, N. Y.

Hog Ringers.
Chambers, Bering & Quinlan Co., Decatur,

Hoisting Machines.
Box Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington E., Son & Co., Phila.
McCoy & Sanders, 26 Warren, N. Y.
Morse, Williams & Co., Phila.
Sellers Wm. & Co., Phila. and N. Y.
Teal Hoist Co., Philadelphia.

Hollow Ware.
N. Y. Stamping Co., Brooklyn, N. Y.

Horse Nails. *Makers of.*
National Horse Nail Co. Vergennes.

Horse Shoes. *Makers of*
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose Clamps.
Tuerk Water Meter Co. Syracuse, N. Y.

Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa.

Hydrants, &c.
McLean John, N. Y.

Hydraulic Jacks.
Dudgeon Richard, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.

Indurated Fibre Ware
Union Indurated Fibre Co., N. Y

Injectors.
Aller, Amos, 109 Liberty, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron. *Manufacturers' Agents.*
Cox Justice, Jr., & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Hoffman J. W. & Co., Philadelphia.
Levis Henry & Co., Philadelphia.

Iron. *Manufacturers of.*
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Long & Co., Pittsburgh, Pa.
Mahoning Valley Iron Co., Youngstown, O.
Montour Iron & Steel Co., Danville.
Moorhead-McCleane Co., Pittsburgh, Pa.
Passaic Rolling Mill Co., Paterson
Phœn'x Iron Co., 410 Walnut, Phila.
Pottstown Iron Co, Pottstown, Pa.
Troy Steel and Iron Co., Troy, N. Y.
Whitney A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel. Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philp C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Etting Edward J., Philadelphia, Pa.
Walbaum W. H. & Co., Philadelphia Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia.
Mohr J. J., 430 Walnut, Phila.
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila., Pa.
Hart, Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co., Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 100 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig, *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet. *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O.

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 407 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Mast, Foos & Co., Springfield, O

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. F., Athol, Mass.

Locks and Knobs. *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co., Bridgeport.
Quackenbush, Abram, New York.
Yale & Towne Mfg. Co., Stamford

Machinery.
Adt John & Son, New Haven, Conn.
Barnes W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Bullard, E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 189 Centre, N. Y.
Gray's Ferry F'd'y & Boiler Co., Phila. Pa.
Gray, R. J. & Co., 131st & 4th Ave., N. Y
Hendey Machine Co., Torrington, Ct.
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge, Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Nicholson & Waterman, Providence, R. I.
Pedrick & Ayer, Philadelphia, Pa.
Pryibil P., 407 W. 40th, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers Wm. & Co., Phila.
Snell, Henry L., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. F'd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co., Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. & Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Meat Choppers.
Enterprise Mfg. Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N. Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard, R. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Thomas, Dago J., 1 Broadway, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co., Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co., 139 Green'ch. N. Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Wash'ton N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y.

Norway Shapes, *Rollers of.*
Naylor & Co., 99 John, N. Y.
Rowland William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester.
Wilson J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn

Oil Stones.
A. F. Pike Mfg. Co., PikeStation, N. H.
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardner, Mass.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-Spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Fraim, E. T., Lancaster, Pa.

Pails.
Brower, John, New York.

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton
Stocking E. B., Washington, D. C.

Perforated Metal.
Throop Perforating Co., Buffalo, N. Y

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Pig Iron.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of.*
Donaldson Iron Co, Emaus, Pa.
Fox John, 160 Broadway, N. Y.
Morris, Tasker & Co., 234 South Third street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co. St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.
Tower & Lyon, 95 Chambers St. N. Y

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N. Y

Post Hole Diggers.
Lagonda Mfg. Co., Springfield, O.

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Power Hammers.
Helden R. A. & Co., Danbury, Conn.
Bradley & Co., Syracuse, N. Y.
Dienelt & Eisenhardt, Philadelphia
Duncan, W. P. & Co., Bellafonte, Pa.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Power Transmission Machinery.
Hill Clutch Works, Cleveland, O.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Presses, Power. *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Keystone Engine and Machine Wks Phila., Pa.
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Easthampton, Mass.

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Pumps, Force.
Myers P. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y.

Pumps, *Makers of.*
Clark Bros., Belmont, N. Y.
Columbiana Pump & Machine Co.
Douglas W. & B., Middletown, Conn.
Goulds Mfg. Co., 60 Barclay, N. Y.
Silver & Deming Mfg.Co., Salem,O.
Union Mfg. Co., 103 Chambers, N. Y.

Punching and Shearing Presses.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown, Pa.
Joliet Steel Co., 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y.
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Cowles Mfg. Co., Bridgeport, Ct.

Razors.
Dame, Stoddard & Kendall, Boston, Mass.
J. R. Torrey Razor Co., Worcester Mass.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia,

Refrigerator Trimmings.
Brainard & Co., 97 Chambers St., N. Y.

Registering Machines.
Ives, Geo. E., New Haven, Conn

Rivets.
Disosway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rock Drills.
Clayton Air Compressor Works, Brooklyn, N. Y., and Dey, N. Y.

Rolling Mill Machinery.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co., Pittsburgh, Pa
Seaman, Sleeth & Black, Pittsburgh.

Rope Snaps.
Pratt & Letchworth, Buffalo, N. Y.

Rules, *Manufacturers of.*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Balances.
Caldwell, W. H., Rochester, N. Y.

Sash Cords and Chains.
Morton Thos., 65 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clafin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers st., New York.
Ives H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co, Troy, N. Y.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury, Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Truax, Chauncey S., 64 College Place, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons, Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Richlé Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Decatur Coffin Co., Decatur, Ill.
Ellrich Hdw. Mfg. Co., Plantsville, Conn.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S., 205 Quarry, Philadelphia.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
King, O'Connor & Co., Baltimore, Md.

Scythe Stones and Whetstones
A. F. Pike Mfg. Co., Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co., 24 to 27 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Schollhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.
Rowlands Sons, T., Philadelphia, Pa.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown. Conn.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen, 105 Walker, N. Y.

Sporting Goods.
Field, J. B. & Co., Detroit, Mich.

Spelter.
Manning & Squier, 111 Liberty, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.

Spring Hinges.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Strops.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon Richard, 24 Columbia, N. Y.
Duncan W. P. & Co., Bellefonte Pa.

Steam Heating.
Broomell & Sanks, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
McGowan John H. &Co., Cincinnati.
Norwalk Iron Wks.Co., So. Norwalk.

Steam Traps.
Aller Amos, 109 Liberty, N. Y.

Steel Figures and Alphabets.
Stutaman J. M., 181 William, N. Y.

Steel Importers.
Abbott Jere & Co., N.Y. & Boston.
Hobson Francis & Son, 97John, N. Y.
Jessop Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West, N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones B. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N.Y.
Frankford Steel Co., Philadelphia
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller, Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss F. W., 83 John, N. Y.
Naylor & Co., 99 John, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N.Y.
Wardlow S. & C., Sheffield, Eng.
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beavor-Webb, J., 145 Broadway.
Hicks & Dickey, Philadelphia, Pa.

Steel Nails
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs, *Manufacturers.*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N.Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng. 91 John, N. Y.
Leng John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops
J. R. Torrey & Co., Worcester, Mass.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Truant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Richlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W., Springfield, Mass.
Ellrich Hdw. Mf. Co., Plantsville, Ct.
Hoague, J. H & Co., Chicopee, Mass.
Humphrey Tool Co., Warren, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Campaign.
Shepard, Sidney & Co., Buffalo, N. Y.

Transom Lifters.
Reiher F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Richle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co., 19 Mur'y, N. Y.

Tubes, Steel.
Leng John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam
Chapman Valve Mfg. Co., Boston.
Leng John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 23 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers.
Lanman, E. R., Columbus, O.
Mason Iron Co., Philadelphia, Pa.

Washing Machines.
Wayne, Anthony, Mfg.Co., Fort Wayne Ind.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York.

Water Motors.
Tuerk Water Meter Co., Syracuse, N. Y

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.

Wheels.
Quincy Metal Wheel Co., Quincy, Ills.
I. A. Weston & Co., Syracuse, N. Y

Whiffletree Hooks,
Head's Iron Foundry, Utica, N. Y.

Window Cleaners.
Bosley, D. W. & Co., Chicago.

Window Cord, *Makers of.*
Tolman, J. P. & Co., Boston, Mass.

Window Screens.
Darby, Edw. & Sons, Philada., Pa.
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren St., N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd, Pittsburgh, Pa
Howard & Morse, 45 Fulton, N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co., Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass.
Darby Edward & Sons, Philadelphia.
Estey W. S., 71 Fulton, N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse, 45 Fulton, N. Y.

Wire Goods, *Manufacturers of.*
Brooks M. S. & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville
Howard & Morse, 45 Fulton, N. Y.
Knapp & Hague, New York.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
Adt John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Sweetser, W. A., Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Birmingham Wire Nail Co., Birmingham, Ct.
Dunbar, Hobart & Co., 39 Warren, N. Y
Field A. & Sons, Taunton, Mass.
Hartman Steel Co. Ltd., Pittsburgh Pa.
Phillips E. & Sons, South Hanover
Phillips, Townsend & Co., Phil., Pa
Pittsburgh Wire Nail Co., Pittsburgh Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
Wire Goods Co., Worcester.
Truant W. E., Whitman, Mass.
Whitney A. R. & Co., New York City.

Wire Rods, Steel.
Whitney A. R. & Co., N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St Louis, Mo.
Upson, Walton & Co., Cleveland, O.
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Semis & Call Hardware & Tool Co Springfield, Mass.
Billings Spencer & Co., Hartford Conn.
Coes Wrench Co, Worcester, Mass.
Utility Wrench Co, N. Y.
Williams J. H., Brooklyn, N. Y.

Wrench Jaws.
Atwater, H. W., E. Orange, N. J.

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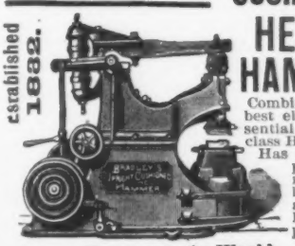

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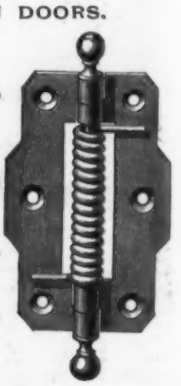

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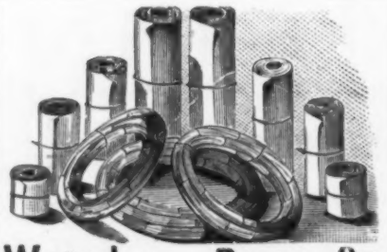

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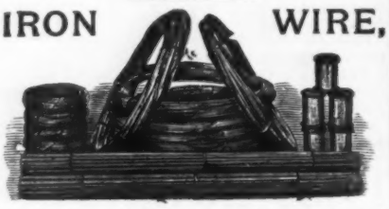

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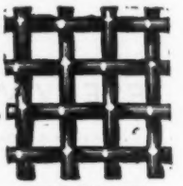

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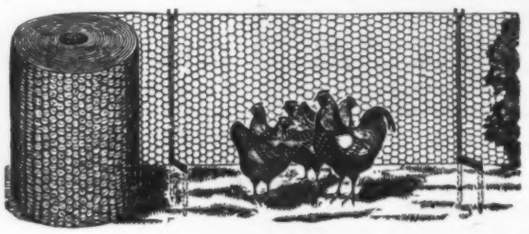

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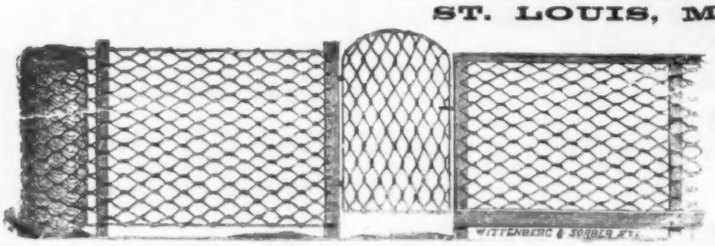

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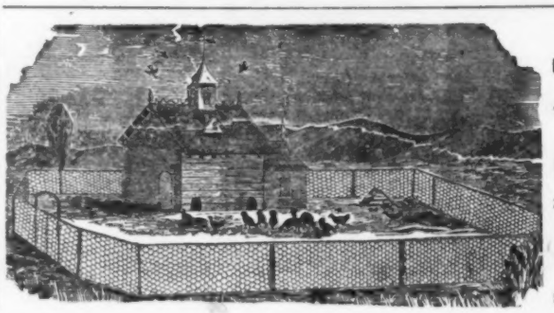

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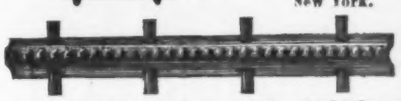

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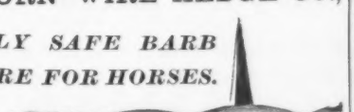

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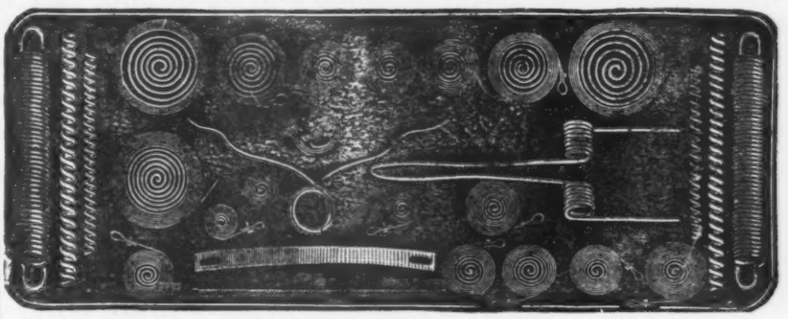

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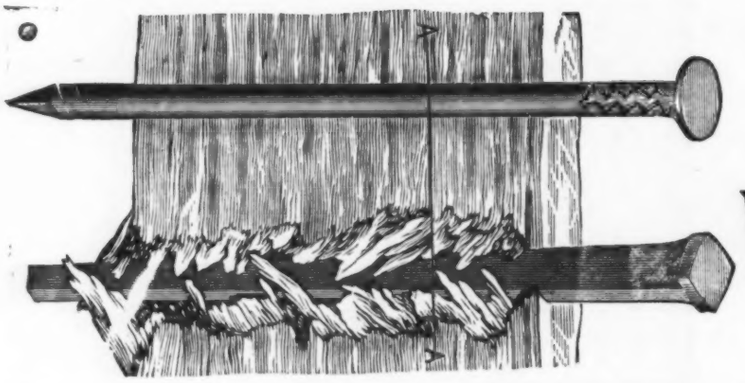

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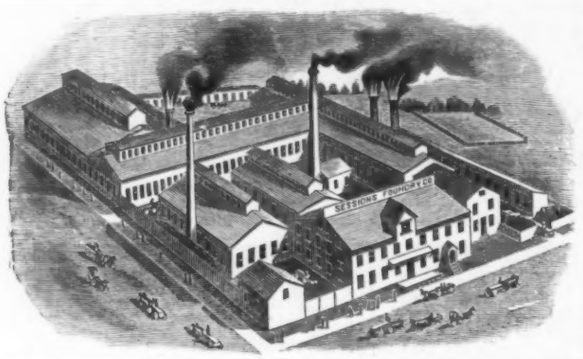

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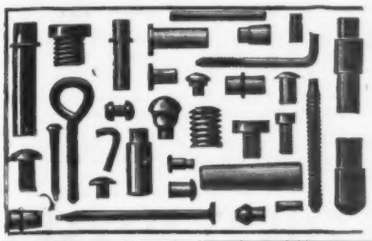

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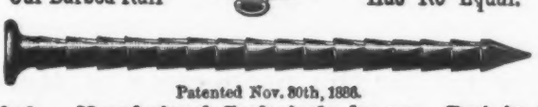

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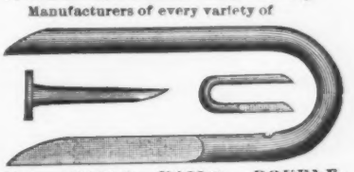

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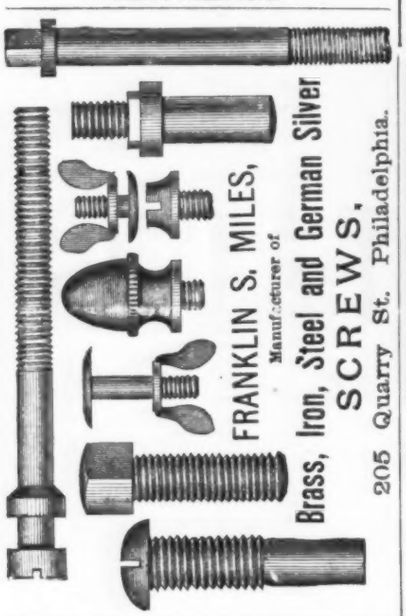

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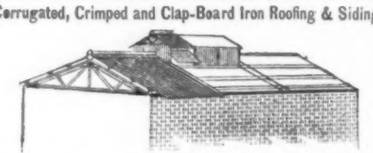

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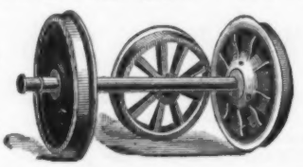

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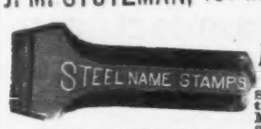

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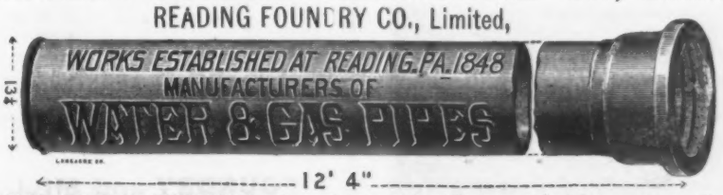

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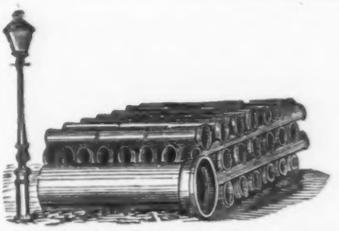

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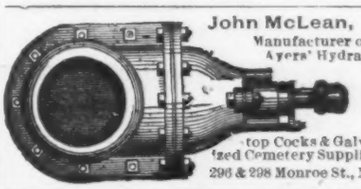

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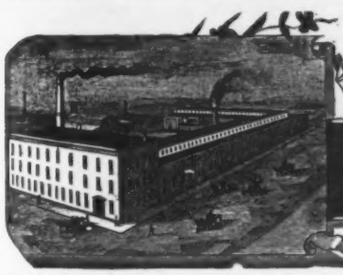

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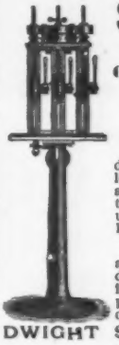

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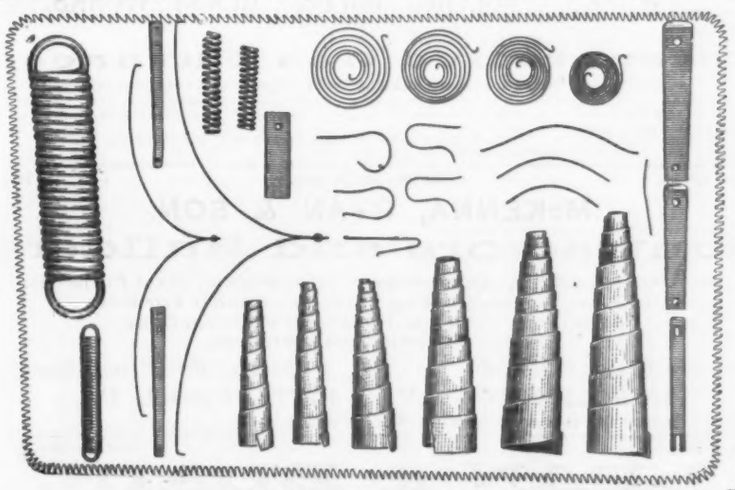

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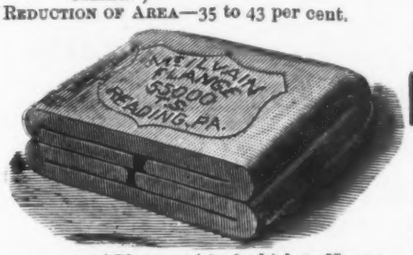

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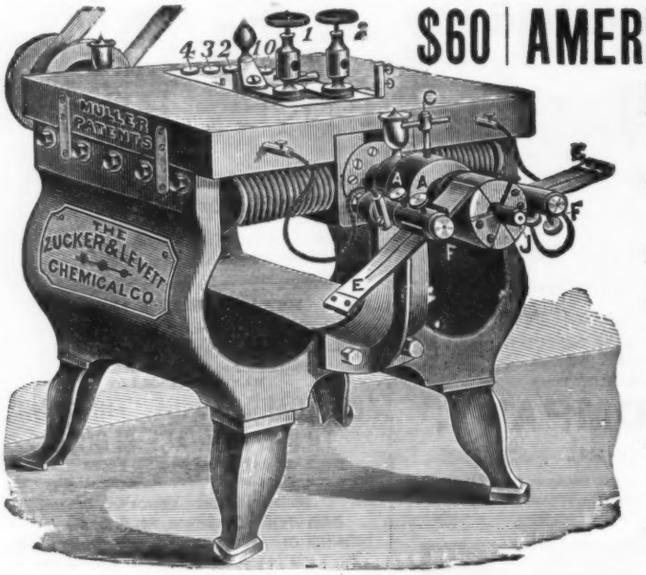

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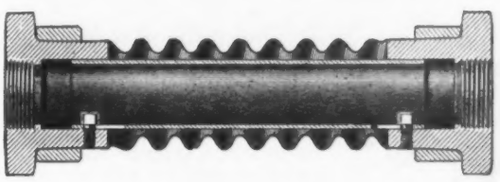

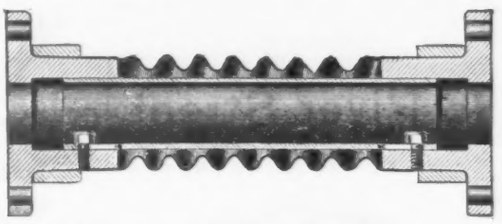

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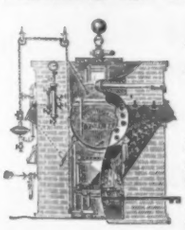

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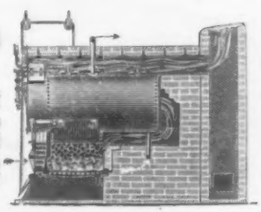

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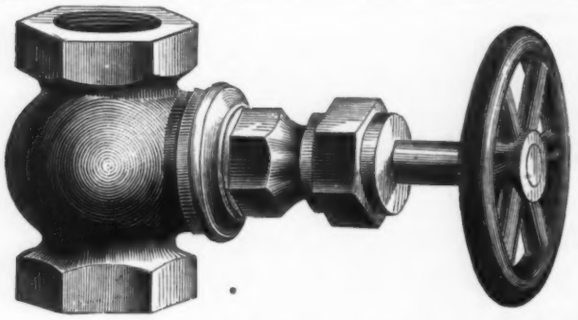

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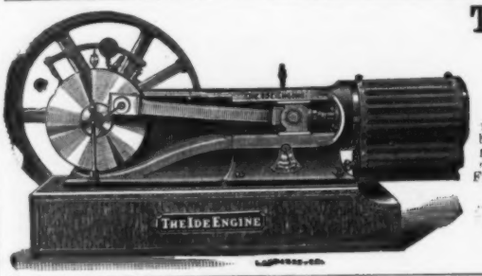

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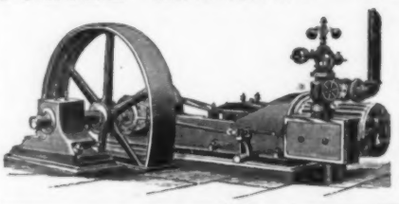

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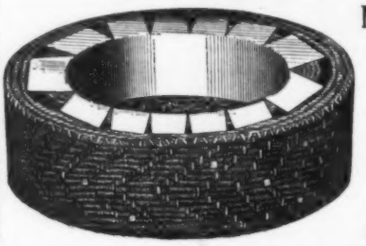

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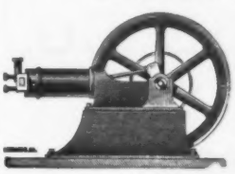

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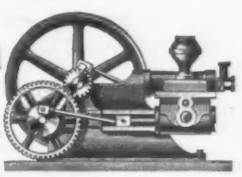

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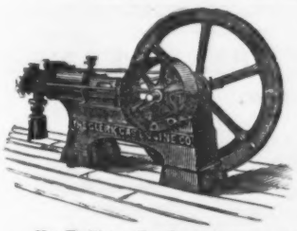

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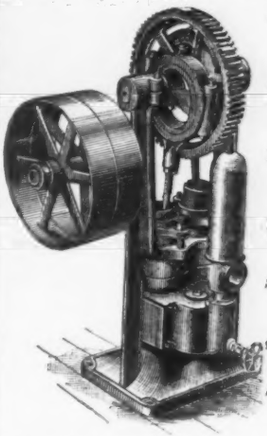

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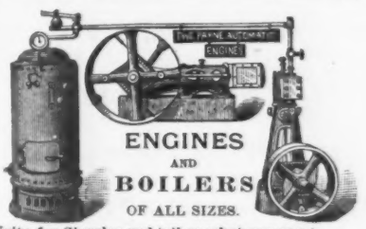

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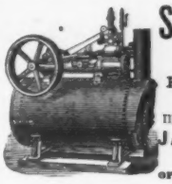

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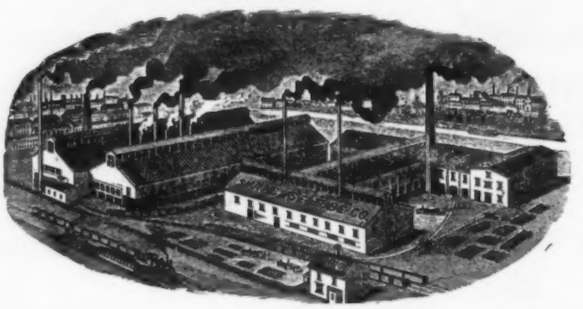

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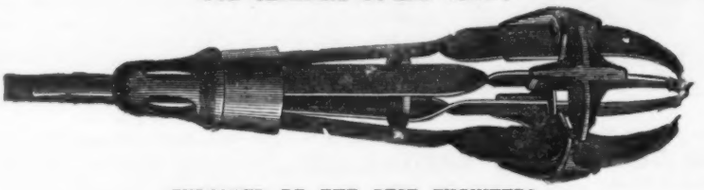

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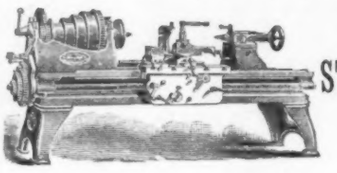

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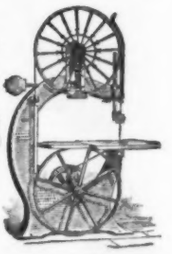

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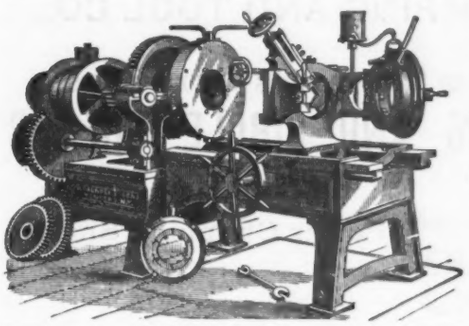

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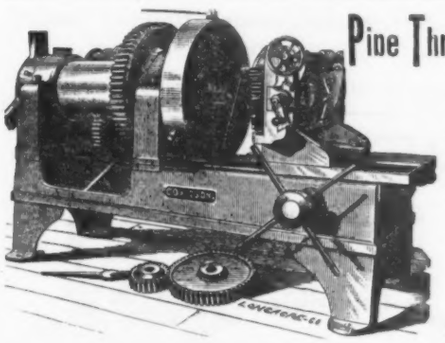

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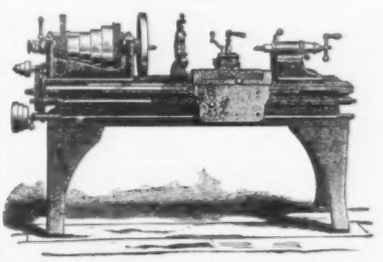

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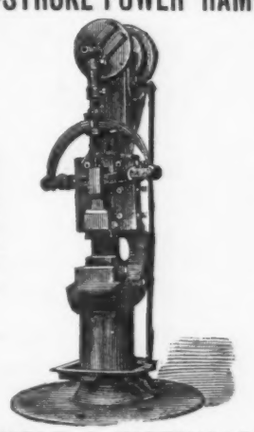

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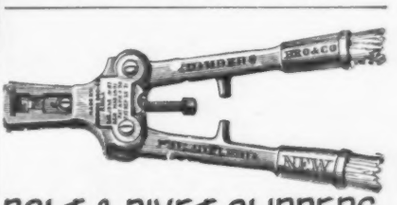

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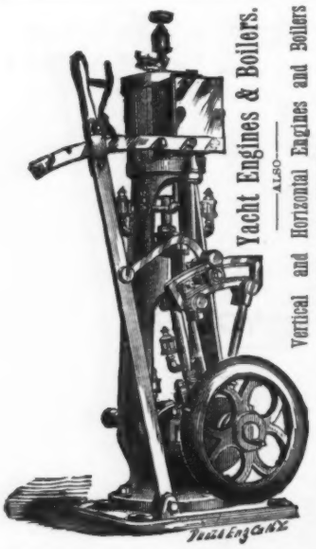

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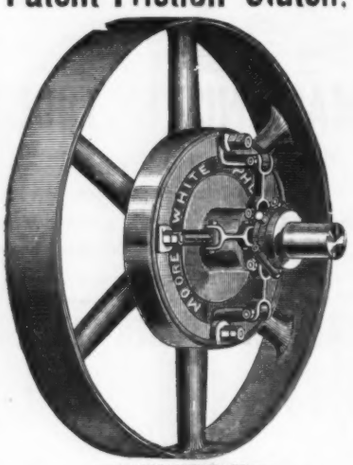

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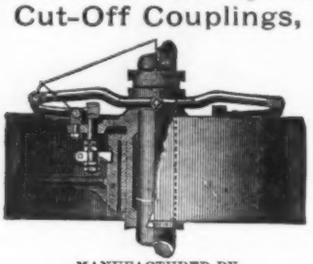

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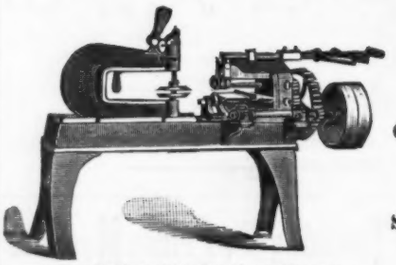

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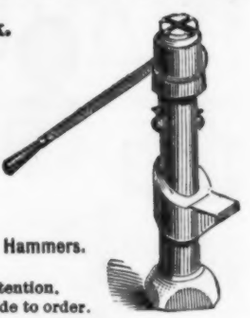

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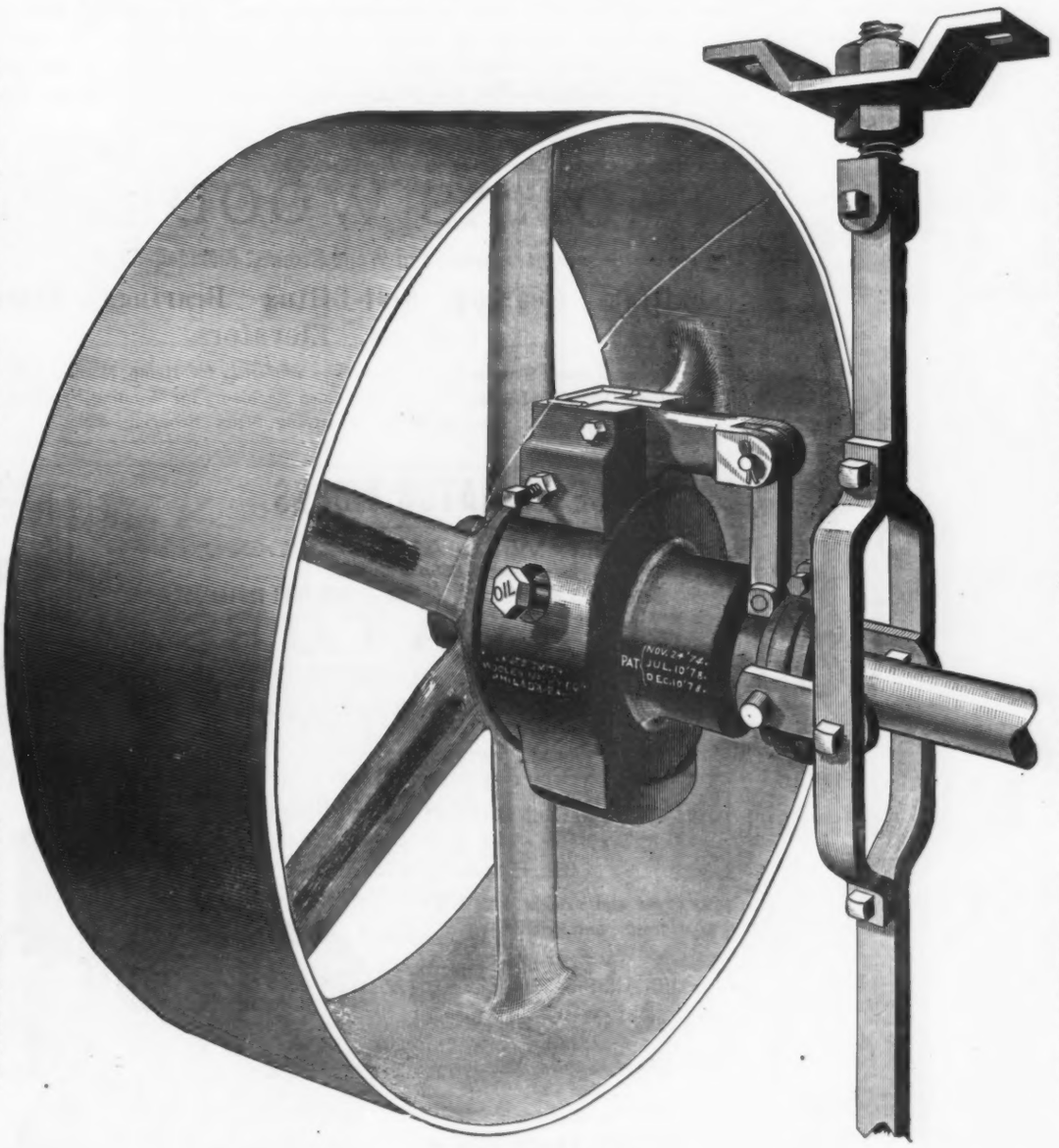

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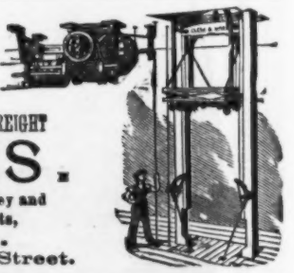

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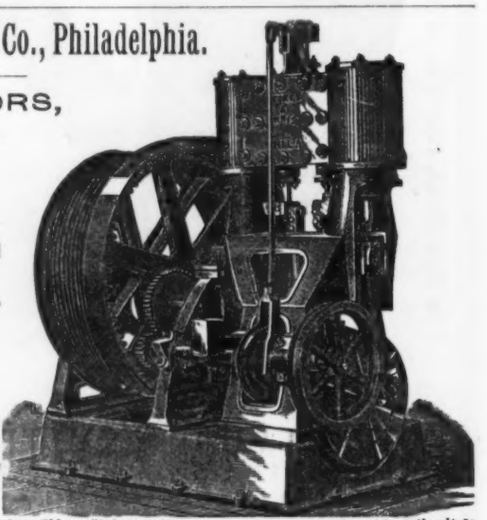

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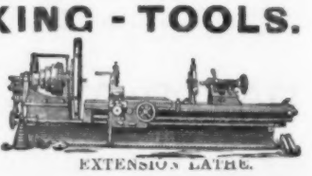

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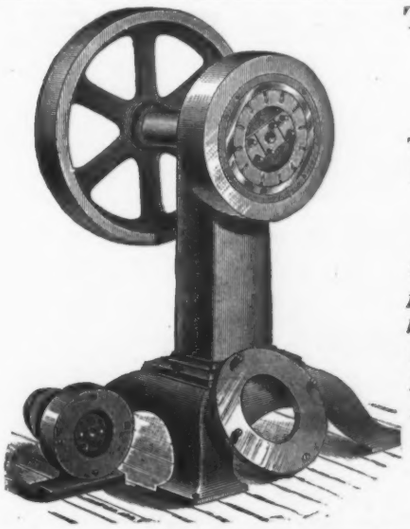

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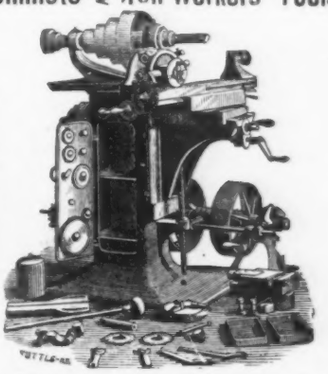

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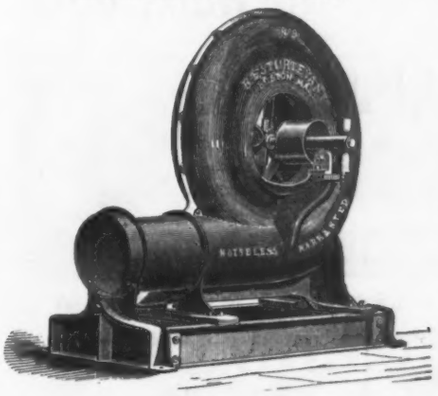

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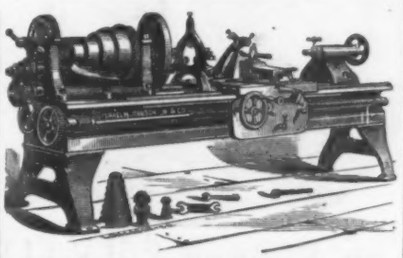

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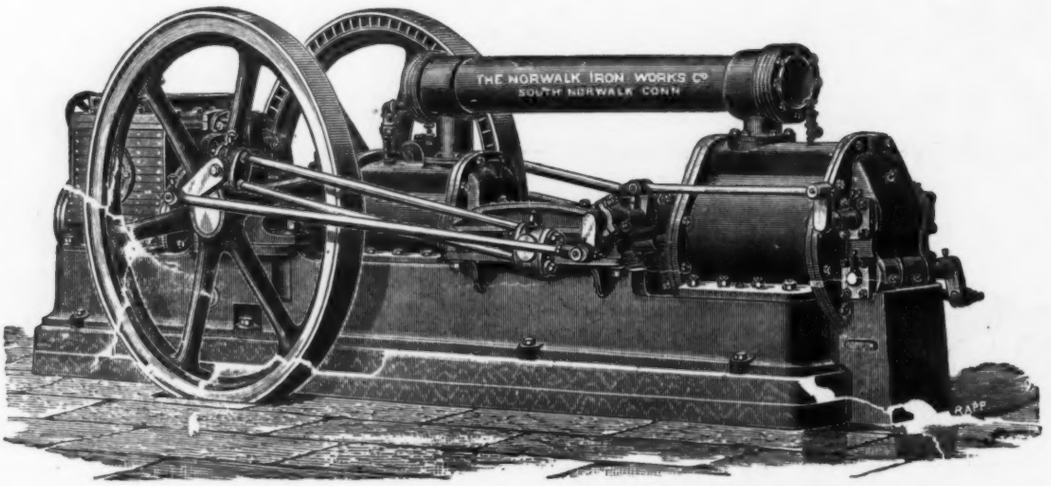

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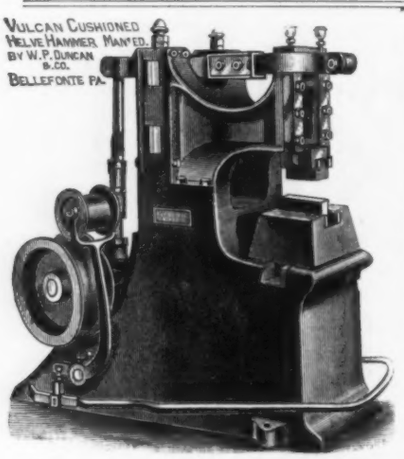

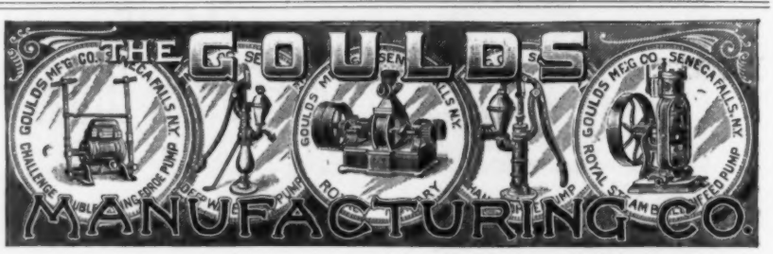

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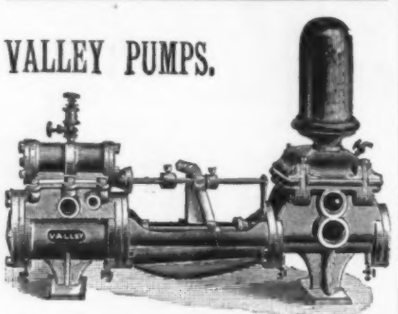

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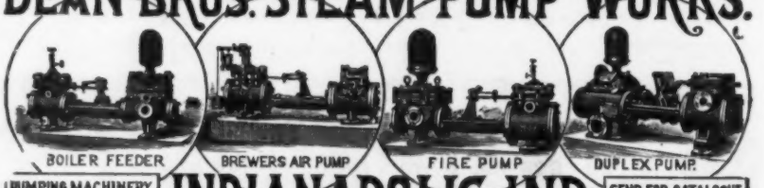

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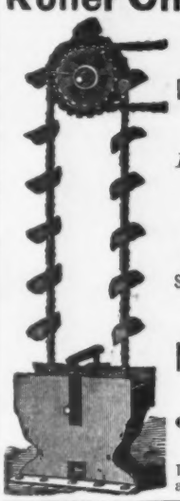

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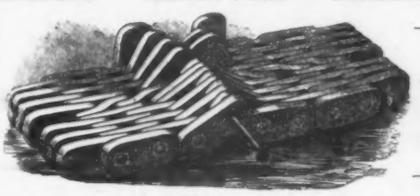

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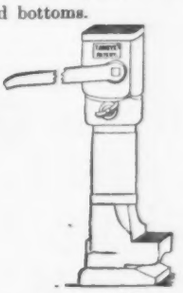

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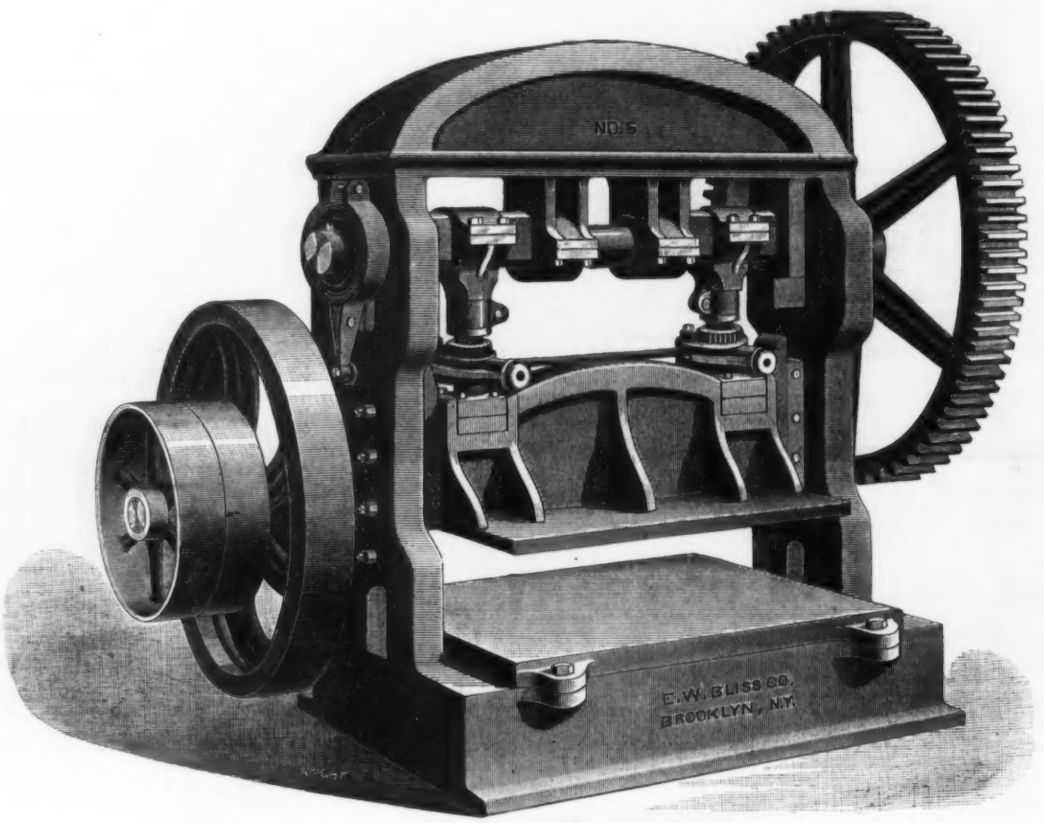

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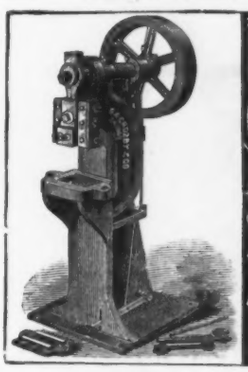

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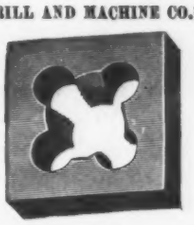

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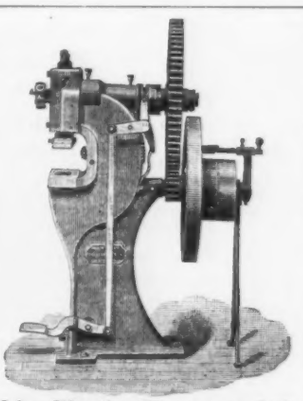

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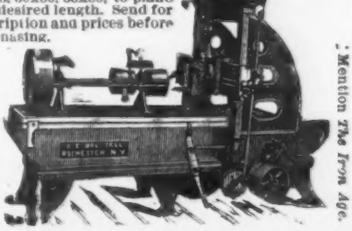

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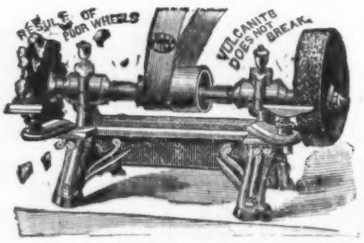

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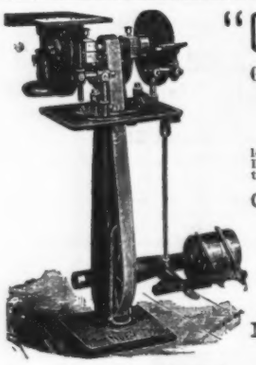

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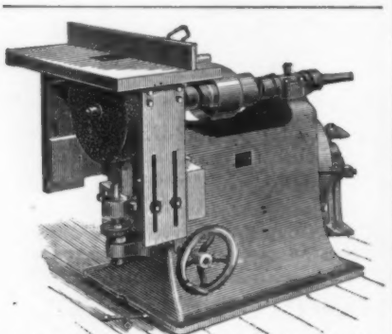

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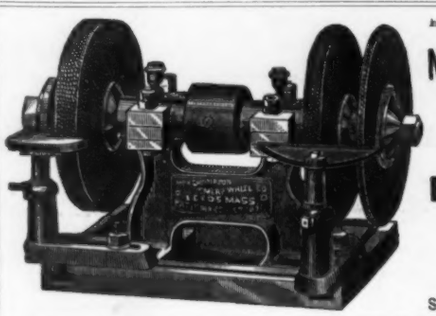

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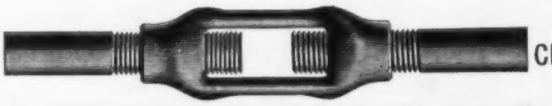
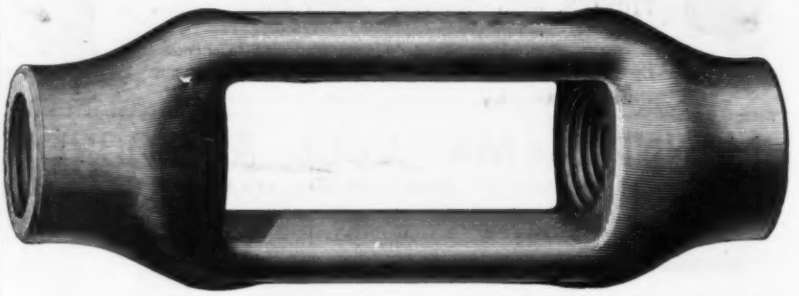
BEST.  CHEAPEST



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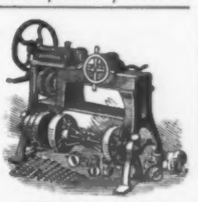

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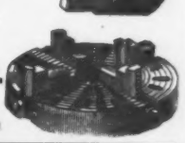

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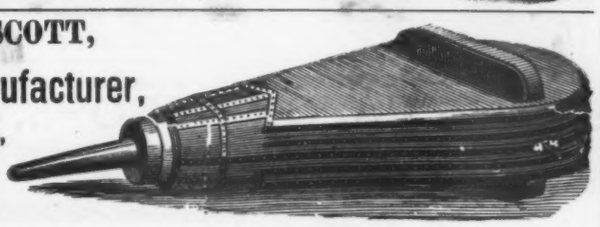

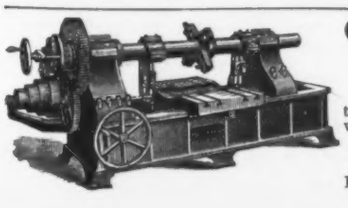

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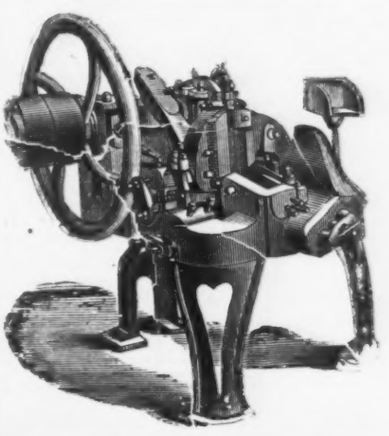

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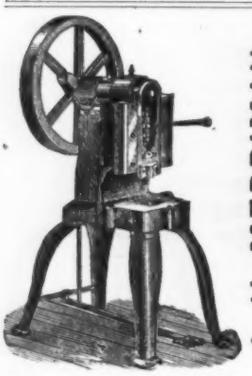

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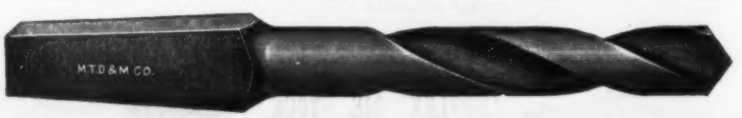

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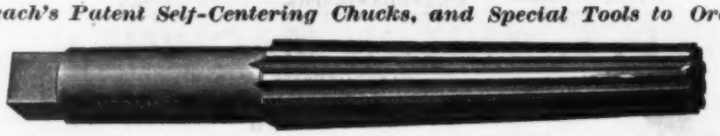

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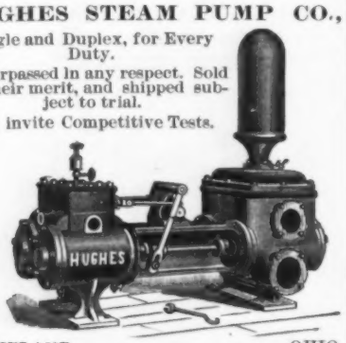

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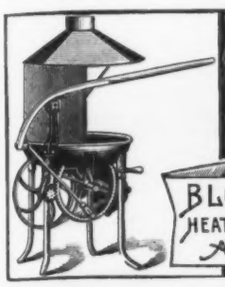

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Beam Engine, 14 x 30 in.
The above are in good order, and for sale in lots to suit for immediate delivery.

THOMPSON C. GILL & CO.,
210 S. Third St., Philadelphia, Pa.

SECOND-HAND
DROPS AND LIFTERS
bought, sold, or taken in exchange for new.
BEECHER & PECK,
New Haven, Conn.

ROLL TURNING LATHES BLOWER AND ENGINE.

One Single Roll Turning Lathe, 18 in. Roll
" Upright Engine, 6½ in. x 17 in.
" Root Blower No. 7.
All in good order.
THOMPSON C. GILL & CO.,
210 So. 3d St., Philadelphia, Pa.

FOR SALE.

One 15-Light Dynamo complete, with 15 Arc Lights. New
DANIEL KELLY,
51 North 7th St.,
Philadelphia.

FOR SALE.

75 Tons Stove Plate.
100 Tons Machinery Iron.
Also Old Iron and Metals of all kinds.
PETTIS & HIGGINS,
301 Fountain St., Providence, R. I.

FOR SALE AT LOW PRICES.—1 each, 12 and 16-in. Turret Lathe, Warner & Swazey, good order. 1 2-inch Automatic Turret Lathe, Freck new, $150. 1 2 Spindle Drill Press with Adjustable Spindles, $50. 1 No. 2 Garvan Hand Feed Miller, good order, $75. 1 Power Punch, punches ½ x ½ new, $175. 2 Large Screw Punches, good order and cheap. 1 3-Spindle Horizontal Nut Tapper, good order, $75. 1 36-inch Car Wheel Borer, good order, $250 1 36-inch Pulley Turning Lathe. 1 Seymour Pulley Balancing Machine. A large assortment of Lathes, Planers, Shapers, etc. New and second-hand. Send for catalogue.
W. H. ROBERTSON, 51 So. Canal St., Chicago, Ill.

STEEL PLATE.

For Sale, a lot of Steel Plate 5-16 in. to ½ in. thick up to 108 in. wide; will shear in size and shapes to suit.

THOMPSON C. GILL & CO.,
210 So. Third St., Philadelphia.

FOR SALE.—18 x 42 CORLISS ENGINE, built very heavy for the Brush Electric Light Co.; other styles of Automatic and Plain Slide Valve Engines, Boilers and Pumps.
FRANK McSWEGAN,
Dover St. and Franklin Sq.

MR. HARDWARE

dealer and traveling man, take due notice that I give 20 per cent. from my regular established prices on Boilers and Engines. Write for Catalogue. Also the largest stock of Drive Well Points and Tools and Pumps in the country.
H. M. SCIPLE,
Bordentown, N

ASSIGNEE'S SALE.

Smith, Beggs & Ranken Machine Company Property!

Embracing nearly an **Entire Block of City Real Estate** described as follows: The **whole Main Street front of City Block No. 29**; being 240 feet on West side of said street, with a frontage of **160 feet on East side of Second Street; 300 feet on South side of Monroe Street** (entire block front), by **150 feet on North side of Clinton Street**; being Lots Nos. 34, 35, 36, 62 and 63 of said Block; also all the improvements, machinery, fixtures, tools and patterns on the above described premises.

This property (being one of the largest and most complete establishments of the kind in the Western Country) will be sold by the undersigned, by order of Court, at Auction, on the premises, to the highest bidder, for cash, subject to a mortgage of about $60,000, on Tuesday, the 21st day of August, 1888, between the hours of 12 o'clock noon and 2 o'clock p. m. of said day.

WM. H. THOMSON, ASSIGNEE,
at Boatmen's Saving Bank,
St. Louis, Mo., July 9th, 1888.

ENGINE PATTERNS FOR SALE.—A BARGAIN.

Patterns complete, of a celebrated and new Stationary and Yacht Engine; from a 3 up to a 16 inch cylinder. Patterns new, with core boxes; excellent condition. To be sold at a sacrifice on account of owner retiring from business. Can be examined any time by calling or addressing the undersigned.

BORDENTOWN FOUNDRY & MACHINE WORKS,
Lock Box 24, Bordentown, N. J.

FOR SALE.—Two 80 horse-power Locomotive Boilers, first-class condition, good for 75 lbs. Second-hand Iron Tanks, all sizes. Wrought and Cast Scrap, Red and Yellow Scrap, Brass, &c.

BUSSENIUS & CUNLIFFE,
12th and Washington Ave.,
Philadelphia.

FOR SALE.

One 6 H.-P. N. Y. Safety Engine.
One Vertical Boiler, 60 H.-P. Second-hand.
One 70 H.-P. Buckeye Automatic Engine. Second-hand.
One 25 H.-P. Engine. New.
Two 600 gallon Compound Pumping Engines, with Fly Wheel. New. Address
KEYSTONE ENGINE & MACHINE WORKS,
W. L. SIMPSON, Proprietor,
5th and Buttonwood Sts., Philadelphia.

FOR SALE—IMMEDIATE DELIVERY.

One new Star Tool Co.'s Cutting-off Machine, capable of cutting 5-in stock.
Two new Star Tool Co.'s Traverse Drills.
Twenty new modern Lathe and Planer Chucks, popular makes, all sizes, at large discounts from manufacturers prices.

DIAMOND MACHINE CO.,
Chicago, Ill. Providence, R. I

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

FOSDICK & PLUCKER,
SIXTH and CULVERT STS., CINCINNATI, OHIO.

Wanted to Buy,

A Good Second-hand or New 60 in. x 60 in. PLANER, to plane from 15 to 30 feet. If Second-hand, must be of modern design and in first-class order.

FOSDICK & PLUCKER,
Sixth & Culvert, Cincinnati, Ohio.

FOR SALE, CHEAP.

150 h.-p. Engine, slide valve, 20 in. cyl., 48 in. stroke, iron frame, with heater and plunger pump, all in working order. Can be seen at our works in operation.

Delivery at our factory any time after 17th September.

OHIO TOOL CO.,
Columbus, O.

COIL-BOILERS FOR THE UNITED STATES NAVY.—NAVY DEPARTMENT, Washington, D. C., August 2, 1888.—The Navy Department, having in view the possible decrease in weight of machinery in vessels of war by the use of tubulous, sectional or coil-boilers, has determined to adopt such boilers, if suitable can be found, for a portion of the steam-power of one or more of the vessels about to be built. To this end manufacturers who wish to offer such boilers for use by the Department are hereby invited to furnish plans of the same, adapted to an armored coast-defence vessel, on or before September 15, 1888. Plans must be accompanied by certificates that boilers of the same make are or have been in successful use at sea or on shore. Plans showing the space in the vessel available for boilers, particulars of the duty required and other information, may be obtained upon application to the Bureau of Steam Engineering. The boiler which appears to the Department, after investigation, to be the best for the purpose, taking into account the evaporative efficiency, the dryness of the steam, the weight of the boiler, the weight of the water contained, the accessibility for repairs, the ease of making repairs, the simplicity and interchangeability of the parts, the space occupied, the ease of firing and of regulating the feed, the suitability for working in battery, the capability of long-continued steaming without cleaning, and the durability, will be adopted in the coast-defense vessel above mentioned, provided that the price, which must be stated when the plans are submitted, is satisfactory to the Navy Department. Such boilers as appear to possess merit will be tested by the Navy Department, if the manufacturers so desire, to determine which is the more suitable for the purpose. Manufacturers who wish their boilers to be tested must furnish a boiler of the type of one of those proposed for the vessel and prepare it for test, either at their own works or at such place as may be arranged with the Department. The expense of the test of the accepted boiler will be borne by the Navy Department, and the cost of the fuel used in the test of the second best will also be borne by the Navy Department. All other tests must be at the expense of the parties offering boilers for competition.

WILLIAM C. WHITNEY,
Secretary of the Navy.

FACTORY LOCATIONS.

Correspondence invited from manufacturers seeking new locations, or from parties wishing to engage in manufacturing enterprises.

Full information given regarding the many advantages offered by our city as a manufacturing centre, among them being 16 lines of railroads; coal at 50 cents per ton, &c., &c.

Address,
J. E. CLAREY,
Acting Secretary,
The Commercial Exchange,
Des Moines, Iowa.

A RARE OPPORTUNITY.

CLAPP-GRIFFITH STEEL PLANT

FOR SALE.

Consisting of one 3-ton converter, complete, with bottoms, hydraulic cranes, ladles, pumps, cupola crusher and pan, drying ovens, castings, accumulator, hydraulic valves, piping, etc., ready for erecting.

Also, one 2-high 20-inch muck train, with engine, 25 in. x 72 in., fly wheel, shaft and three extra sets of rolls. Will roll 2¼ in., 3 in., 4 in. and 6 in.; in excellent condition.

All of the above can be purchased very low. For full particulars address

SCOTT & McLEAN,
Room 46, Lewis Block,
Pittsburgh, Pa.

FOR RENT.

VALLEY FORGE MILL AND WATER-POWER

With new Dam and Flood Gates,

Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.

For particulars, address
J. B. CARTER, Hardware Manfg. Agent,
504 Commerce St. Philadelphia.

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4 dozen Plated Mortise Knobs, 2¼ inches, at $6.00 per dozen.
250 gross Fancy Wood Shutter Knobs, 1½ inches, at 50 cents per gross.
For sale by
JOHN BROWER,
P. O. Box 1423,
New York.

FOR SALE.—The Northwestern Foundry. Largest and best in Minneapolis. Located on half of block 106 (330 x 165 ft.) and part of block 105, corners Third street, Ninth and Tenth aves., South. Main building (200 x 60 ft.) is brick with slate roof, contains four Cranes, three Cupolas, &c., complete set of Car-wheel and various patterns for Stoves, Machinery, Architectural, Ornamental, Bridge and Railroad Castings. Office also of brick, 40 x 20 feet; fire-proof vault and burglar safe in same. Will sell the entire plant, including the valuable Real Estate, Railroad Tracks, Track and Wagon Scales, &c. All the above in first-class order.

Address
MENZEL & FERGUSON,
Minneapolis, Minn

FOR SALE.—A first-class Boiler and Sheet Iron Business in a thriving Western city of 100,000 inhabitants. Shop has been in operation eight years and has a growing and profitable business which can be largely increased. Good buildings, power tools, and first-class location on R. R. track. Good reason for selling. Correspondence and investigation from parties meaning business solicited. Address
"WESTERN CITY,"
Office of *The Iron Age*, 66-68 Duane St., N. Y.

Valuable Manufacturing Property

FOR SALE.

The real estate and buildings now occupied by the Watertown Steam Engine Co., of Watertown, N. Y., will be offered for sale. The property covers about four acres; has an unfailing water power on the Black River estimated at 225 h.-p. Consists of machine shop, foundry, boiler shop, blacksmith shop, store houses and tenements. The buildings are equipped with line shafting, and could be adapted to a large variety of manufacturing purposes. Moderate cost of labor, combined with low freight rates and nearness to raw material, with an abundant water power, make Watertown an exceptionally good point for manufacturing. It is essentially a manufacturing town.

The property can be divided and sold in parcels if desired.

Address WATERTOWN STEAM ENGINE CO., Watertown, N. Y.

AN IRON CO. having large quantity of orders, a well-equipped, newly built and well located Plant, for the manufacture of Steam-Heating Material, such as Radiators, Pipe Fittings, &c., and worth about $50,000, net, wish to increase their capital and business and obtain from $10,000 to $30,000, and a gentleman capable of managing office affairs. It is the only concern of the kind in the Northwest, and the trade in this section is unlimited. Address, "Iron Co.," Room 7, Gilfillan Building, St. Paul, Minn.

FOR SALE.

A rare chance is offered for the purchase of one of the oldest Wholesale Hardware Stores in the South (established 1839); a clean, well assorted stock; no shop worn goods; stock will inventory $30,000; can be reduced if so desired; good reasons for selling. For particulars address
"BUSINESS," Box 234,
Office of *The Iron Age*, 66-68 Duane St., New York

EXCELLENT OPPORTUNITY.

An old established Hardware House wants a good smart business man to buy one-third interest and do the buying. Retail sales, $65,000, and can be grown to $100,000; located in center of city of 150,000 inhabitants in this State; this is a first-class opportunity for the right man to get in a safe and profitable business; no risks; capital required between $6000 and $7000. Address
"ROGERS,"
Office of *The Iron Age*, 66 and 68 Duane St., N. Y.

Do You "Catch On?"

Having one of the largest and most complete plants for the manufacture of AUGERS and AUGER BITS, we wish to arrange with some enterprising party for the extensive manufacture of these goods. Factory and machinery thoroughly equipped in all parts and ready for immediate resumption of the works. Several valuable Patented Specialties in the line in hand, which will insure the success and profit of the business. To the right man a rare and profitable investment is here offered. Should such be preferred, would sell the entire machinery, with or without the factory, at a great bargain.

GEO. F. STEARNS,
Chester, Conn.

PARTNER.

The proprietor of a well-equipped machine shop situated in a manufacturing town of 10,000 inhabitants in N. Y., and doing a thriving jobbing business, besides manufacturing a line of special mill machinery of which he owns the patents, desires a working partner with a capital of from $12,000 to $15,000, which amount can be doubled in three years, besides a good salary. Must be a practical machinist, and first class in every requirement. Address
"WORKING PARTNER,"
office of *The Iron Age*, 66-68 Duane Street, N. Y

A GOOD HARDWARE BUSINESS FOR SALE.

Wishing to retire from all active business, the undersigned offer for sale their valuable and thoroughly established business. The stock is clean and well selected. Waverly, New York, is a growing place, with considerable manufacturing, and surrounded by a good farming country; has good water, gas works and sewers, also five railroads radiating from it. The location of the store building is central, with every convenience, including hydraulic elevator, &c. The business has been conducted successfully as wholesale and retail; can be continued as we have conducted it, or else we can soon reduce the stock, and it can be conducted as a retail alone.

In negotiating sale, reference given and required.

MERRIAM BROS., Waverly, N. Y.

FOR SALE.

AN UNUSUAL OFFER.

An old established Hardware Business doing the leading wholesale and retail trade in one of the best towns in Minnesota. This is an opportunity seldom offered. Reason for sale, death of proprietor. Address

H. V. RUTHEFORD,
Attorney-at-Law, St. Paul, Minn.

FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock, Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85 , wo stories. Warehouse, 22 x 30, two stories in rear. Does a large and paying business, which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade. Address

W. L. HAY & SON,
Iowa Falls, Iowa

FOR SALE.

Nice clean stock of general hardware, stoves, &c., with tin shop in connection; will invoice about $5000. Located in thriving town of 5000 inhabitants, situated on two lines of railroad, within twenty-five miles of Minneapolis. Well-established business. Satisfactory reason for selling. For further particulars inquire or address

MILLER BROS. & FLETCHER,
119 & 121 2nd St., So., Minneapolis, Minn.

FOR SALE.

HARDWARE STORE located in one of the largest cities on the New York, New Haven and Hartford R. R. *Established in* 1848. Location best in the city. Will inventory about $12,000. Satisfactory reasons for selling. Address

"N. N. & H.,"

Office of *The Iron Age*, 66-68 Duane St., N. Y.

A LIVE MAN with small capital can buy an interest in an established Hardware Novelty Manufacture. Address

"S. S. P.,"
289 Bleeker Street, New York.

WANTED.

HARDWARE SPECIALTIES to manufacture or will buy good patents. Address with particulars

"C. T. G.,"

Office of *The Iron Age*, 66-68 Duane St., N. Y.

WANTED, LOCAL

Agents and Traveling Men to sell the most complete stock of Boilers and Engines, Drive Well Points and Tools and Pumps in America.

H. M. SCIPLE,
Bordentown, N. J.

FOR RENT!!! "Water Power," "Water Power."—The nearest available water power to New York City at Boonton, New Jersey. Constant all the year around! This magnificent water power will be leased in small or large quantities to suit the tenant. Suitable buildings erected for all kinds of manufacturing purposes. Splendid shipping facilities! On the line of railroad and canal. Only 50 minutes from New York City by train. This power will be leased at a great reduction on steam. Address LORD ESTATE, 68 Wall Street

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TO LET.

Office and Sample Room.
One half of Basement. All of Subcellar.
HUMASON & BECKLEY MFG. CO.,
80 ChambersStreet, New York

AUCTION NOTICE.

HAYDOCK & BISSELL,

Wholesale Auctioneers.

Large Special and Peremptory Trade Sale of

HARDWARE, HOUSE FURNISHING GOODS, EDGE TOOLS, &c.,

On Wednesday and Thursday, August 29th and 30th, at 10 a. m.,

At Nos. 12 Murray St. and 15 Park Place, New York.

This sale will comprise large invoices direct from the manufacturers, and will include Cast-Steel Axes, Hammers, Hatchets, Straps and T Hinges, Augers, Auger Bits, Steel Squares, Casters, Bolts, Saws, Locks, Chisels, Drawing Knives, Files, Horse Rasps, &c., &c.

Also about 300 Scale Beams, with weights, 100 lbs. to 800 lbs.; cases of Cast-Steel Taps and Drills; cases Bit Braces.

Also, for account of whom it may concern, to close the business,

Peremptory Sale of about 500 Cases Philadelphia Screw Co.'s

First Quality Flat Head Iron and Brass Screws,

comprising a full assortment of sizes. These goods will be sold by the case only. Manufacturers who desire to make consignments to this sale must forward their invoices by the 18th inst.

Catalogues will be mailed (when ready) to those who apply for them.

The entire sale will be sold without reserve, and will be worthy the attention of the trade.

Swedish Mining Engineer.

If a man is needed as Chemist or Manager of a Charcoal Furnace, address

"Y. L.," MILWAUKEE POST OFFICE, WIS.

Best of references can be furnished.

AGENCY WANTED

OF

WIRE NAIL MILL

For New York, New Jersey and New England States.

Address "D. G.," Box 91,
Office of *The Iron Age*, 66-68 Duane St., N. Y.

AGENCIES WANTED.

The advertisers, two young men, energetic, reliable and experienced in Wholesale Hardware business, solicit correspondence with manufacturers desiring to establish a branch or agency in Chicago. Address

"C. & L.,"

office of *The Iron Age*, 97 Washington st., Chicago, Ill

DIXON'S GRAPHITE MACHINE GREASE

is not intended for use in an oil cup. For gears for loose-fitting journals and bearings where such a grease can be used, complete satisfaction is guaranteed.

JOS. DIXON CRUCIBLE CO.,
JERSEY CITY, N. J.

LEIGH'S DISCOUNT BOOK.

Specially arranged for the use of
The Hardware Trade and all who buy or sell by "List and Discount."

FOURTH EDITION.

An entirely new book, enlarged, improved, perfected. The best and most practical book of the kind ever published; 129 pages, over 40,000 computations, absolutely correct; every page can be instantly referred to; bound in leather; 4x6 inches; price by mail *Three Dollars.* Address

IVISON BLAKEMAN, TAYLOR & CO., New York
BECKTOLD & CO., 210 Pine Street, St Louis, Mo

TO BLAST FURNACEMEN.

A large lot of Watson's Fire-Brick, new, for sale cheap.

"W. H. Z.," P. O. Box 1071, N. Y. City.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia please address

J. B. CARTER,
Hardware Manufacturers' Agent,
504 Commerce Street, Philadelphia, Pa.

FOR SALE.

Clean stock of Hardware; will invoice about $7000; in the best city in Central Nebraska; population, 15,000; terms, one-half down, balance to suit purchaser. This is one of the finest arranged stores in the State, and is so neatly constructed its attraction will draw trade. Correspondence solicited. Address

P. S. BURGER,
Hastings, Neb.

FOR SALE.—A COMPLETE RETAIL STOCK OF BUILDERS' HARDWARE AND TOOLS. Store located in a flourishing city of 150,000 inhabitants in the Northwest. Has the largest and best trade in the city; business last year $90,000. Stock will inventory from $30,000 to $35,000. Good reasons given for selling. Address

"MINNESOTA,"
Office of *The Iron Age*, 66-68 Duane Street, N. Y.

NEW SOUTHERN HARDWARE STORE.

Adams Bros. & Co. will commence a General Hardware Business in Knoxville, Tenn., September 1st, 1888, and solicit from manufacturers agency for any goods in our line adapted to Southern Trade and not generally carried by jobbers. Address

Nos. 318 Broad St., and 455 Crozier St.

FOR SALE, CHEAP.

Factory in splendid location, ten miles from New York, on East River and railroad; steam power and buildings, mostly one story high, in good order, the latter covering over 18,000 square feet, with dock, switch to freight depot; abundant pure spring water; 130,000 square feet of ground. For particulars, address

"W. B.,"
P. O. Box 1588, New York.

FOR SALE—40-horse Tubular Boiler and Engine, second hand, in good running order. Apply

STANDARD STEEL CASTING CO.,
Thurlow, Pa.

WANTED.

One each, 6 and 14 inch Drop Press.

BUHL STAMPING CO.,
Detroit, Mich.

A HARDWARE BUSINESS in one of the best cities of Kansas; stock will invoice upwards of ten thousand dollars. Crops in Kansas, and prospects for the coming fall trade, were never better. Business has been established ten years. Reasons for wanting to sell, ill health of family. None but those who have money and mean business need correspond. For particulars, address at once

C. B. KURZHALS,
Saint Joseph, Mo.

THE BUSINESS heretofore conducted by Porter & Wooster, as dealers in carriage hardware, is offered for sale, and affords an excellent opportunity for any one who wishes to engage in the carriage hardware business in Boston. This does not apply to their manufacturing business in which each partner will continue separately. Any one desiring to purchase may apply to

F. V. WOOSTER,
68 Beverly Street, Boston.

PRICE BOOKS.

LARGE SIZE, 500 Pages, 6 x 9½ in. each, $3.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

B. LAMBERSON,

PORTLAND, OREGON.

EXCELLENT BLACK COPIES of *anything written* or *drawn* with *any* Pen (or Type Writer) by the Patent

AUTOCOPYIST Only equaled by Lithography. Specimens free.

AUTOCOPYIST CO., 166 William St. New York

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

WANTED—For a Hammer and Hatchet Factory a first-class Foreman, one who has had experience in the manufacture of these goods. Apply with references to "HAMMER MFG.," Office of *The Iron Age*, 66-68 Duane Street, N. Y.

WANTED.—Good lathe and vise hands for sheet metal die work. "BUHL STAMPING COMPANY," Detroit, Mich.

SALESMAN WANTED in Babbitts Solder and Metals generally. Liberal terms to one commanding a desirable trade. No limit as to territory. Apply "METALS," Box 44, office of *The Iron Age*, 66 and 68 Duane Street, New York.

CUTLERY SALESMEN WANTED.—A good salesman to solicit orders on commission in the New England States for a leading line of Pocket Cutlery, Shears and Scissors. Also wanted one acquainted with retail trade in Minnesota, Wisconsin and Iowa. Address, stating experience, reference, &c., "SHEARS & SCISSORS," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A MAN competent to superintend a Copper Rolling Mill. Address "H. W. S.," office of *The Iron Age*. 66 and 68 Duane St., N. Y.

TRAVELING SALESMEN WANTED.—COMPETENT, ENERGETIC AND PUSHING SALESMEN to sell a line of special goods well kuown to the Hardware, Stove and House-Furnishing Trade; must be familiar with the Hardware Business, and experienced in selling goods on the road, and furnish first-class references. Other lines not conflicting can be taken. Liberal commission. Address "Box 141," Manchester, N. H.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

WANTED-the management of some first-class steel works. The advertiser possesses practical abilities of a high order and would undertake either the management or agency for a good house; can command a fine trade in Chicago, St Louis, Lake Superior and throughout the mining districts, notably, Montana, Utah and Colorado. Address "GOOD MANAGEMENT," office of *The Iron Age*, 66-68 Duane St., N.Y

WANTED.—Situation as Superintendent of Machine Works, by a gentleman who has had a good practical as well as theoretical training; understands handling of men to advantage, and the construction of special machines. Address, stating character of work, "D. R.," Box 87, office of *The Iron Age*, 66 & 68 Duane St., N. Y.

WANTED.—A situation by a man of 20 years' experience, as Blast Furnace or Mill Manager, being also an experienced Roll Turner in rails and shape Iron and Steel of all kinds. Can design and superintend the construction of all kinds of mill and furnace machinery; highest references given. Address "IRON AND STEEL," Box H., office of *The Iron Age*, 66 and 68 Duane St., New York.

AN ACTIVE, EFFICIENT BUSINESS MAN of long experience in New York, with executive ability, would like a responsible position in the Wholesale Hardware or other business, as buyer or manager for any department; thoroughly qualified; highest references. Address "EFFICIENCY," office of *The Iron Age*, 66 and 68 Duane St., New York.

A CHEMIST of ability and experience desires an engagement with an Iron or Steel company; is skilled in all forms of Iron and Steel analysis, &c., and can furnish first-class references. Address "S. D. M.," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MECHANICAL ENGINEER for 8 years in charge of the Drawing Room of a large establishment manufacturing Engines, Sugar Mills, Rolling Mills, Cotton Compressors of 2500 tons capacity, Ice Machines, &c., desires to make a change. Address "H. E. S.," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A PRACTICAL MAN, a situation as Foreman Moulder of an Iron Foundry; 20 years' experience, and pretty competent to take the full charge of a foundry of any size or any class of work, and run it to a profit; best of reference. Address "MECHANIC," Lock Box 2162, Bridgeport, Conn.

A GENTLEMAN who has had an extensive business experience and who possesses business abilities of a high order, would like to make an arrangement to take charge of a Chicago Agency for some first-class Eastern manufacturing firm. Best of references, both East and West. Address "H.," Office of *The Iron Age* 66 and 68 Duane Street, New York.

ENGINEER AND DRAUGHTSMAN, experienced and reliable; A1 Designer on Machine Tools, Special Machinery, Transmission of Power, Hoisting Machinery, Hydraulic Machinery, Engines, etc., desires engagement. Address "R. P.," 225 Erie St., Cleveland, O.

ROLL TURNER WANTS POSITION. Capable of designing rolls for shapes and ordinary bar sizes, steel and iron. Best of references. Address "SHAPES," Office of *The Iron Age*, 66-68 Duane Street, N. Y.

SITUATION WANTED by an experienced steel melter and mixer who is now engaged but seeks advancement. Is 29 years of age and can give satisfactory references. Address "STEEL," Office of *The Iron Age*, 77 4th Ave., Pittsburgh, Pa.

A GENTLEMAN for many years connected with a large retail Hardware House desires a position as manager, buyer or commercial traveler. Understands fully the Hardware business in its various branches, stoves, tinware, iron and steel, iron pipe and fittings. References furnished if required. Address "HENRY," Lock Box 1086, Philadelphia.

A PRACTICAL and experienced Iron and Steel Rolling Mill Superintendent (Bar Plate and Rails), and also builder of mills and works, making plans, working drawings, &c., having been engaged on such work for over 20 years; just completed the erection of an extensive plant, and is now open for an engagement in either capacity; first-class references. Address "B. J. H.," office of *The Iron Age*, 66 and 68 Duane St., New York.

NEW TECHNICAL BOOKS.

A Manual of Practical Hygiene. Seventh edition enlarged by F. de Chaumont, M.D. Illustrated. By E. A. PARKES.....$4.50

A Treatise on Mine Surveying. With numerous diagrams. 314 pages, 12mo, cloth. By B. H BROUGH.....$2.50

Dynamo Tenders' Hand-Book. Showing how to operate and care for electric light installations. 100 pages, with 70 illustrations. 18mo, cloth. By F. B. BADT.....$1.00

Tables of the Properties of Saturated Steam and Other Vapors. By CECIL H. PEABODY, Assistant Professor of Steam Engineering, Mass. Institute of Technology. 8vo, cloth.....$1.00

Astronomy for Amateurs. A practical manual of Telescopic Research in all latitudes adapted to the powers of moderate instruments. Illustrated. By J. A. W. OLIVER.....$2.25

Practical and Analytical Chemistry. Third edition, revised, enlarged and illustrated. By J. MUTER.....$2.00

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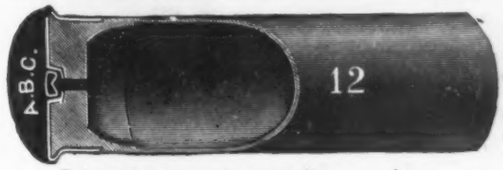

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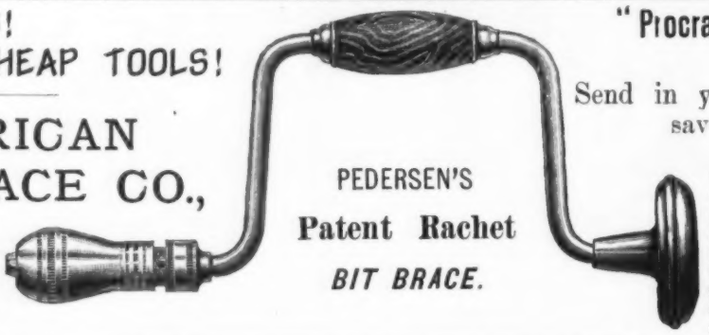

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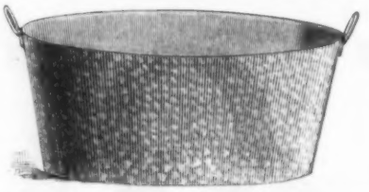

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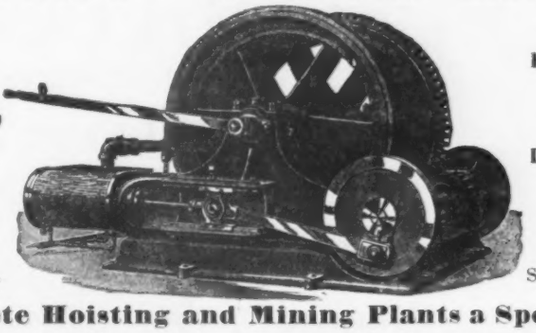

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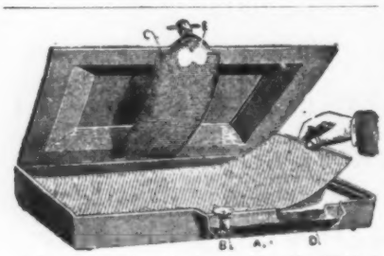

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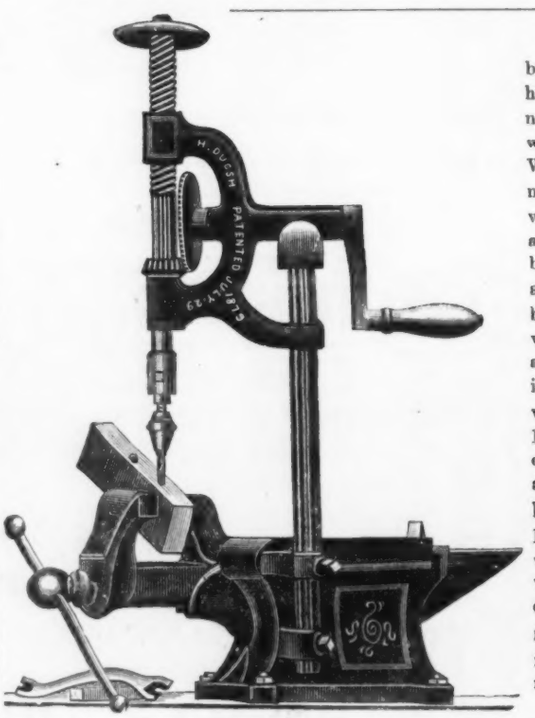

This machine was first made by a practical mechanic for his own use, as he could find nothing in the market that would answer his purpose. When finished, so many other mechanics wanted it that he was minded to get it patented and put it on sale. When brought to our notice we saw at once its great utility, and bought the patent for the whole United States. The anvil has a steel face, 4x8 inches. Vise Jaws 3½ inches wide, and steel faced. Steel Drill Press with adjustable chuck to hold ¼ inch drills and all smaller sizes. We have for sale Morse Twist Drills from ¼ to ¾ inches, with uniform ½ inch shanks, which justs fits into the spindle when the chuck is removed; one of these drills, for a sample, goes with each machine.

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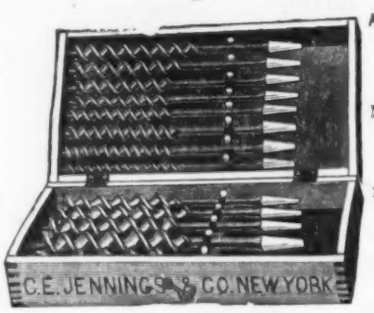

All our Auger Bits are made of Solid Cast Steel and warranted

This illustration represents our Auger Bits put up in Fancy Wood Boxes with rack to hold one Auger Bit of each size

No. 10 Set. C. E. Jennings & Co.'s Extension Lip Auger Bits: 13 Bits, 32½ Quarters, one each as follows: 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16-16ths of an inch, per set $5.00

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Sold by all first-class Hardware dealers. If you fail to obtain them we will forward on receipt of price.

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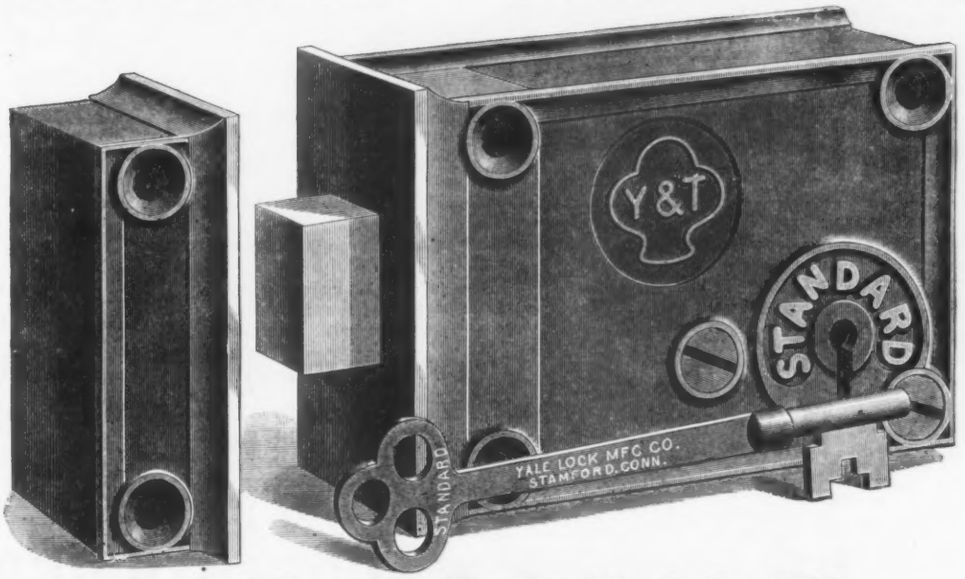
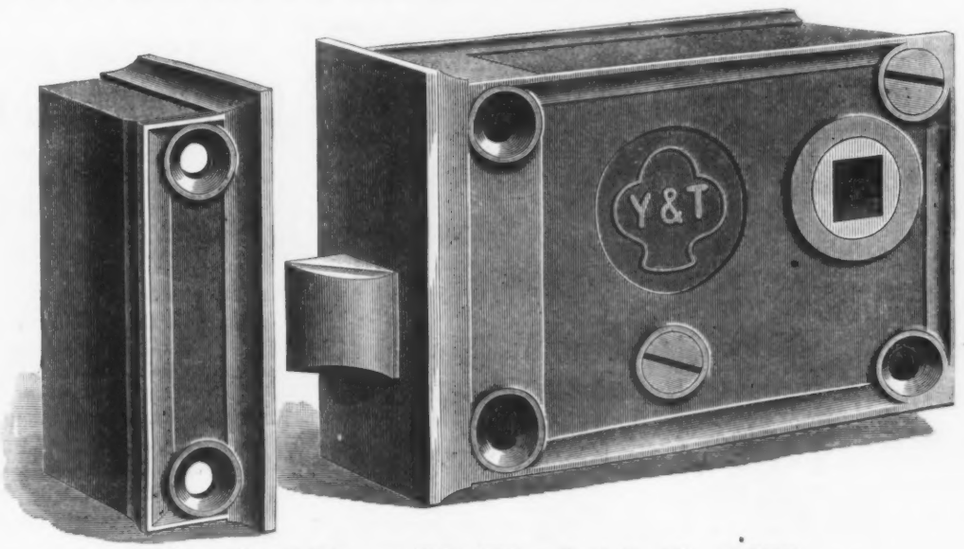


Standard Reversible Rim Dead Lock, No. 4300.



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AT the request of many of the trade, and to meet the requirements for rim locks which are really locks, we offer a line of rim locks with our well-known Standard locking mechanism. They are in all respects of the same quality as our Standard mortise locks, and it is believed will find equal favor for situations where a mortise lock is not applicable. They may be had in either iron or bronze cases All locks are provided with three steel tumblers, heavy bronze bolts and steel keys.

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DOUGLAS' DIAPHRAGM PUMPS, "Loud Patent.

A LARGE CAPACITY, AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig 120. Fig. 70.

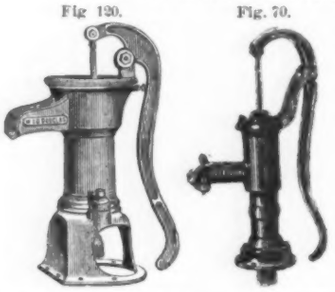

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Fig. 209. Fig. 381.

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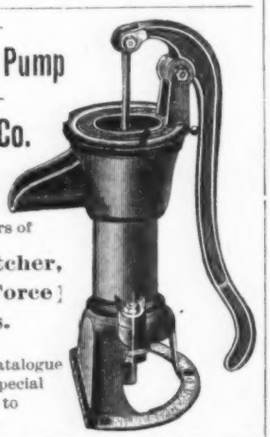

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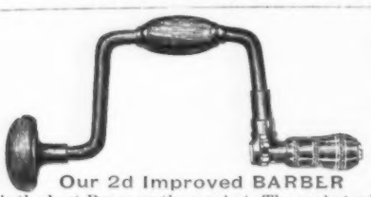

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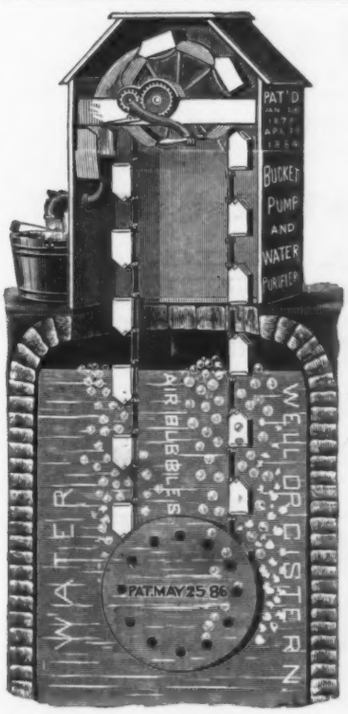

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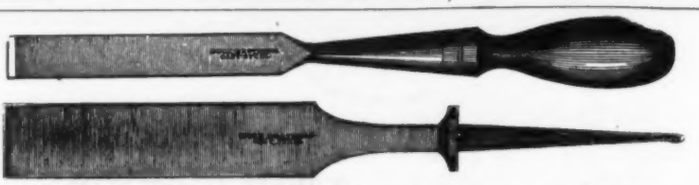

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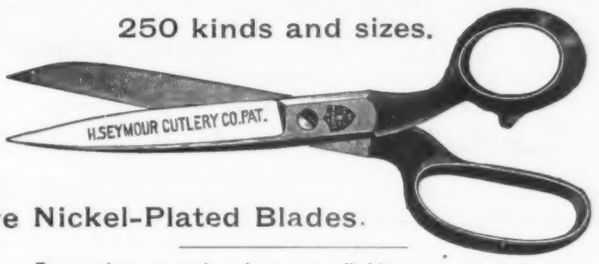

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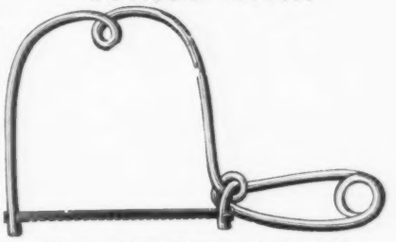

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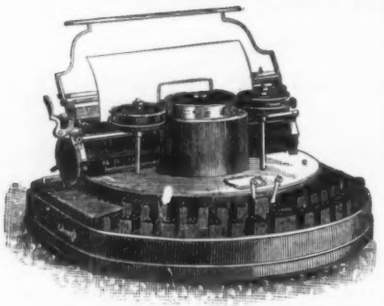

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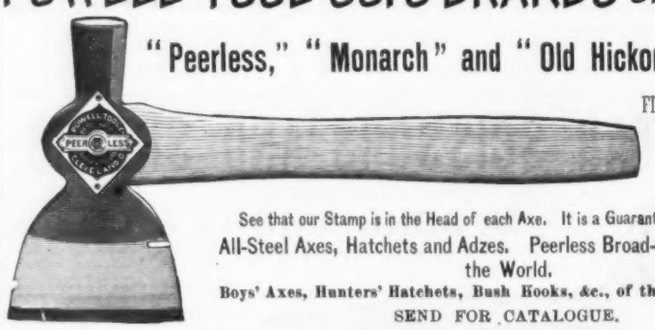

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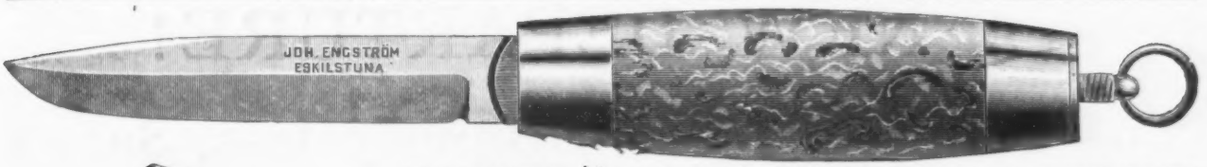

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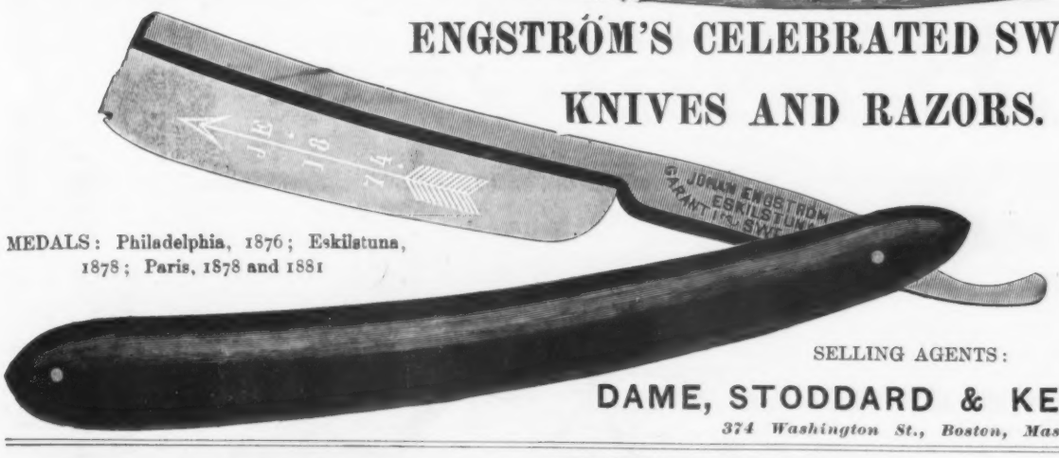

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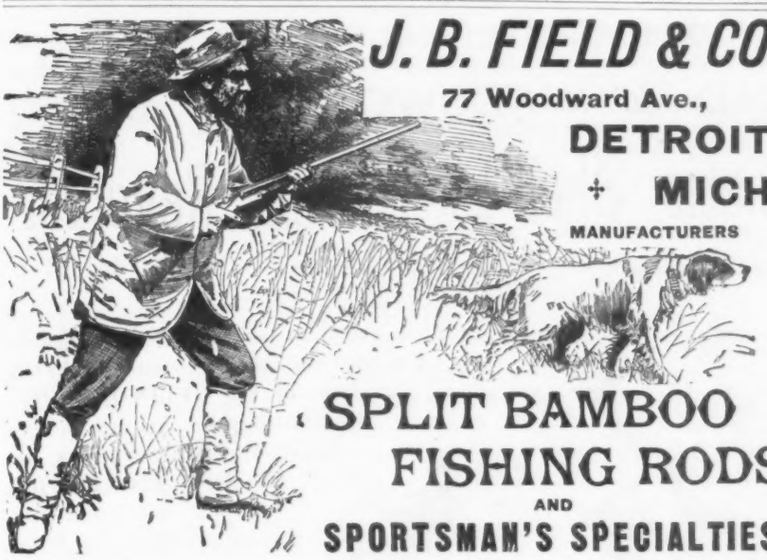

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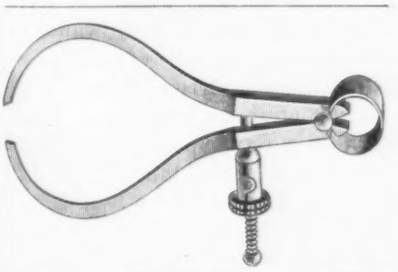

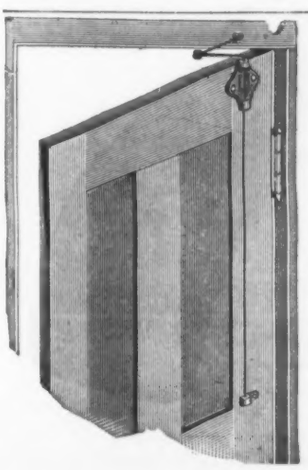

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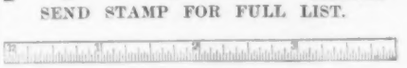

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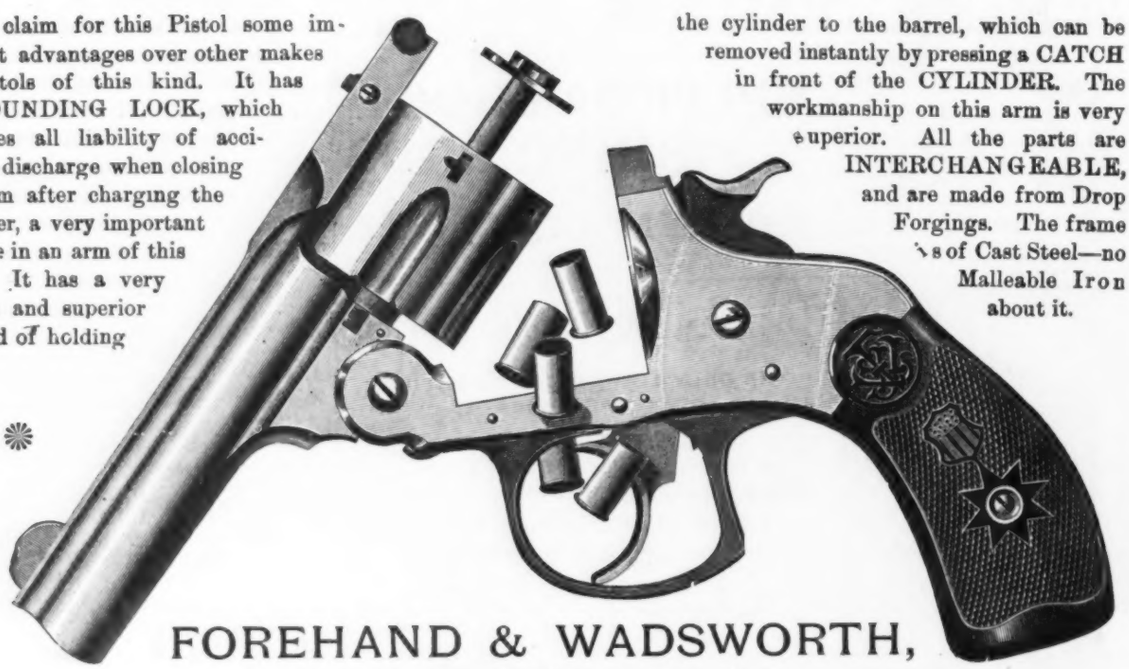

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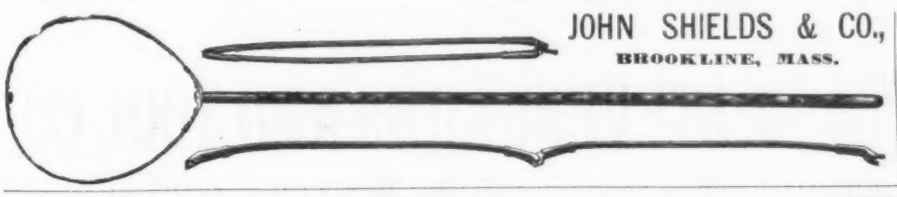

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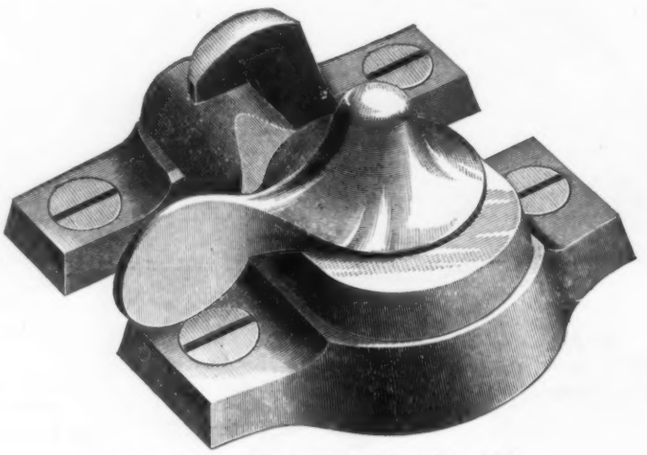

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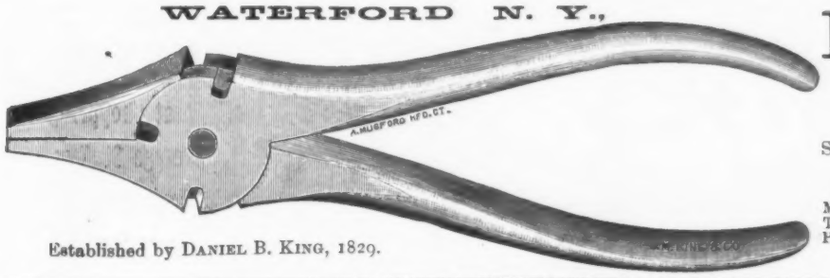

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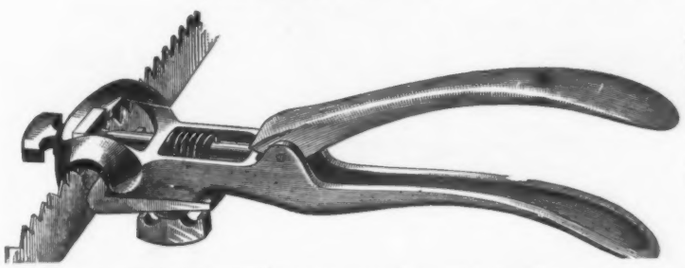

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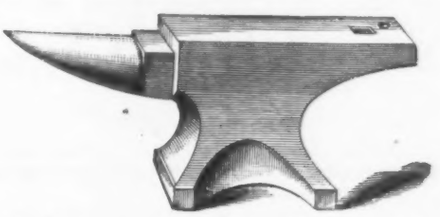

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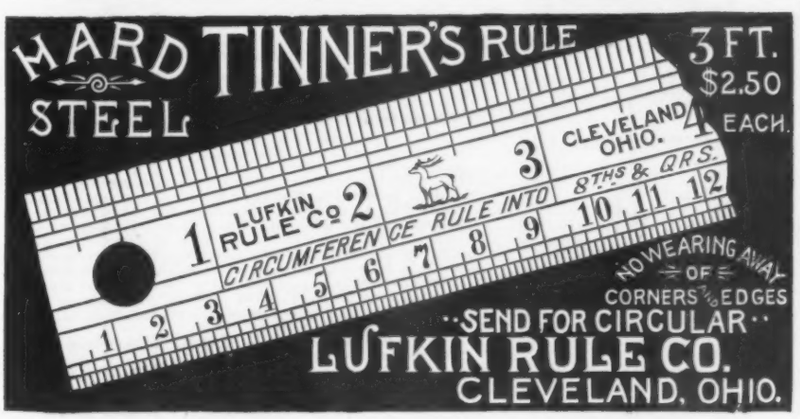

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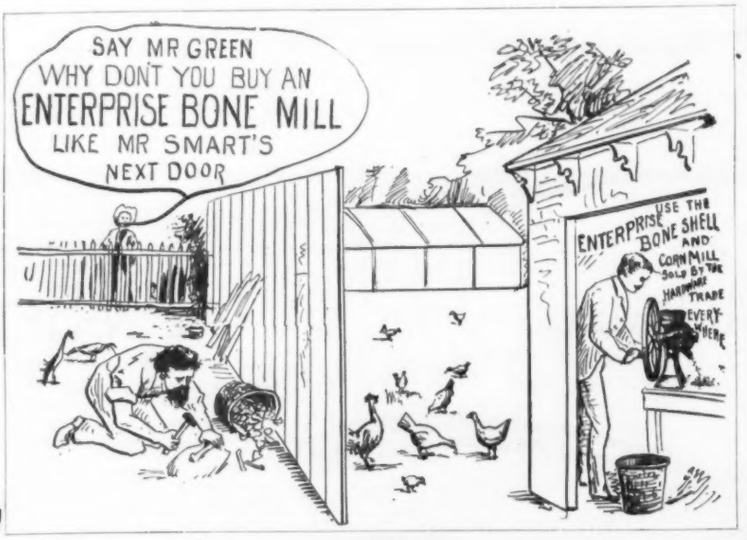

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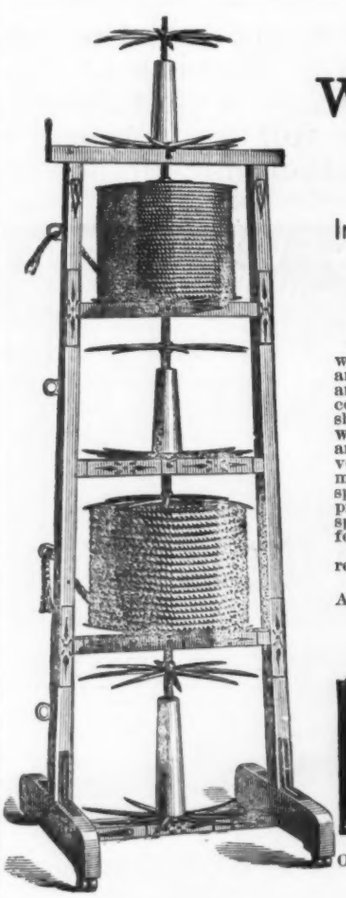

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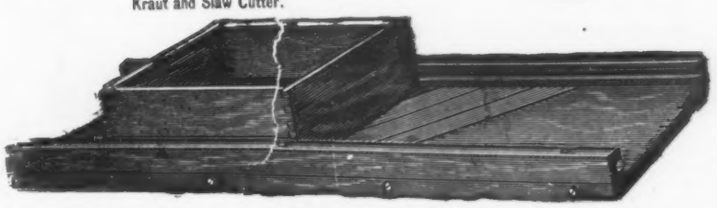

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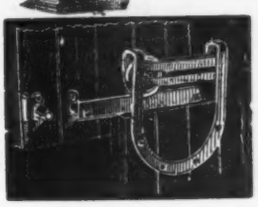

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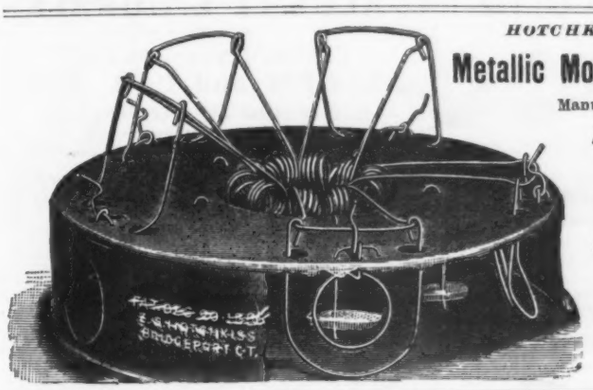

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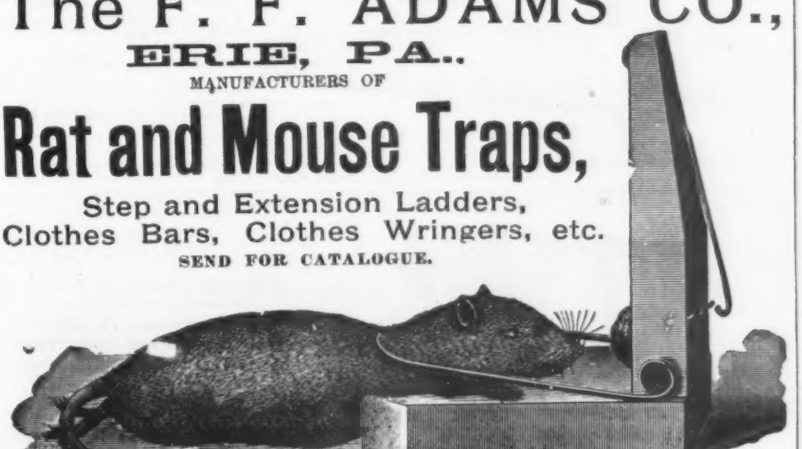

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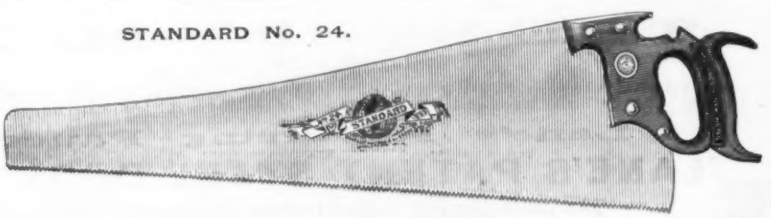

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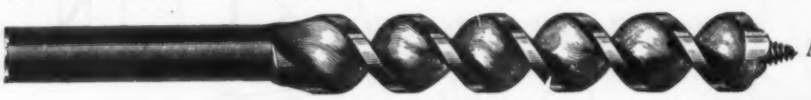

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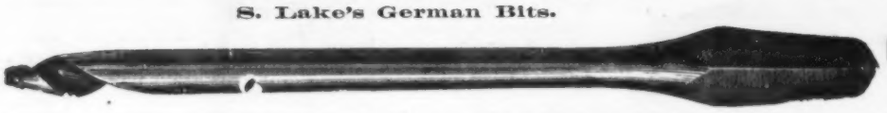

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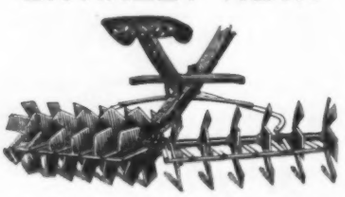

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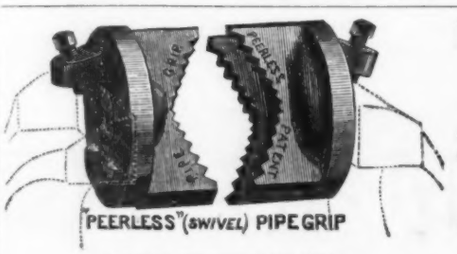

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Instantly converts *any Vise* into a first-class *Pipe Vise*, Holding Pipes, Thimbles, Couplings, Bolts, Nut &c., in *any position.*

PRENTISS VISE CO.,

M'f'rs of all kinds of Vises,

23 DEY STREET, NEW YORK.

A GREAT DEAL FOR A LITTLE MONEY.

THOUSANDS OF DOLLARS SAVED YEARLY BY THE USE OF

"MORTON'S SASH CHAINS"

MADE FROM COPPER AND STEEL.

CABLE CHAINS.

FOR A SASH OF 400 LBS.

FOR A SASH OF 250 LBS.

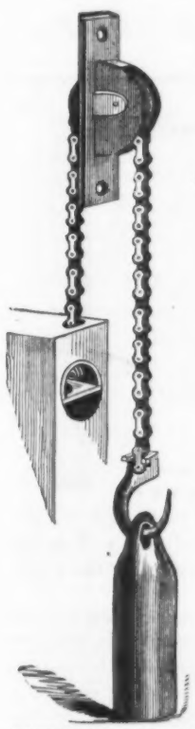
FOR A SASH OF 100 LBS.

FOR A SASH OF 75 LBS.

FOR A SASH OF 30 LBS.

CABLE CHAINS.

CHAMPION CHAIN.



CABLE CHAIN AND ATTACHMENTS.

NOT AN EXPERIMENT, BUT A DECIDED SUCCESS.

Hardware dealers can recommend these chains to their customers as a reliable substitute for cords. They never break, and will last a lifetime.

After an experience of 16 years in the manufacture of Sash Chains, I have to-day a class of Sash Chains that are superior in every respect to any similar article in the market, and are second to none.

The metal from which these chains are made is prepared specially for my use only, and combines great strength with durability.

I have testimonials for my chains from all the leading Hardware Dealers, Builders and Architects throughout the United States and Canada.

CHAMPION CHAIN AND ATTACHMENTS.

They are in use in a great many Public Buildings and Thousands of Private Dwellings, and give satisfaction wherever used.

SAMPLES SENT FREE. DISCOUNT TO THE TRADE.

"THOMAS MORTON"

65 ELIZABETH ST., NEW YORK.

IVES' PATENT. SASH LOCK.

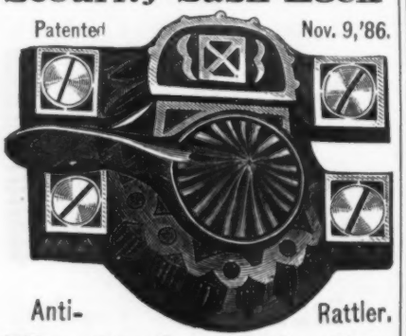
MANUFACTURED ONLY BY

BELL TIP ORNAMENTAL.

H. B. Ives & Co. NEW HAVEN, CONN.

Security Sash Lock

Patented Nov. 9,'86.

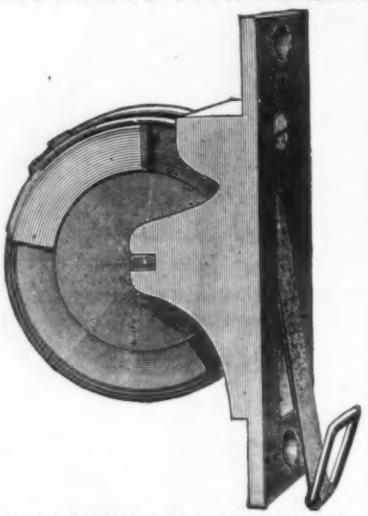


Anti- Rattler.

The Claflen Mfg. Co.,

Cleveland, Ohio, U. S. A., Sole Manufacturers.

The Andrus Sash Balance

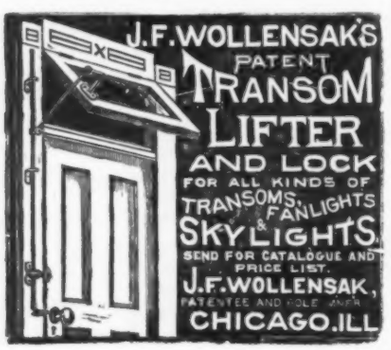


The only perfected balance for sash that can be regulated with a brake to carry sashes of various lengths and weights. It is no more expensive than weights and cords and much less for heavy windows. It is equally adapted to new or old windows. Send for circular of Andrus Sash Balance and Rose Ventilating and Sash Locks, &c.

WM. H. CALDWELL,

Successor to ANDRUS MFG. CO.,

Rochester, N. Y.



KEYSTONE LOCK WORKS,

LANCASTER, PA.

All patents sustained by U. S. Courts.

E. T. FRAIM,

Manufacturer of the Celebrated Patent Inter-Locking Tumbler

JAIL PADLOCKS,

The only durable low-priced Scandinavian padlock ever produced, 34 different grades and sizes, all malleable iron. Red, black and bright brown Japanned.

FLAT STEEL KEY LOCKS A SPECIALTY.

Write for New Illustrated Catalogue and Discounts.

TOWER & LYON, GENERAL AGENTS, 95 CHAMBERS STREET, NEW YORK.

THE BOSTON KNOB CO.,

MANUFACTURERS OF FINE DOOR KNOBS,

No. 169 HIGH STREET,

GEO. F. WHITING, (FORT HILL SQUARE.)

President and Manager.

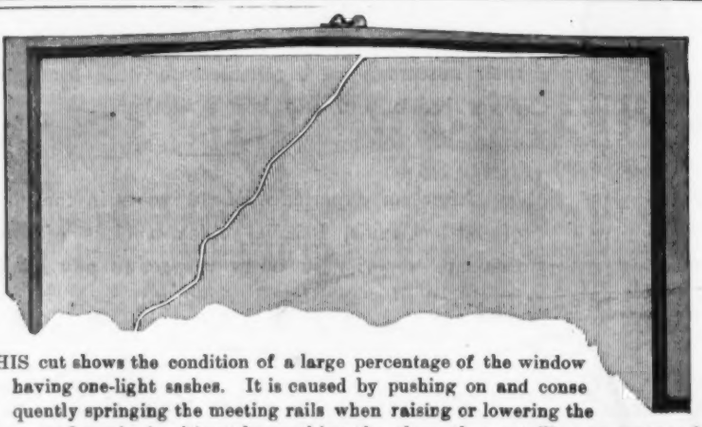
THE peculiar qualities of the Knobs made by the Boston Knob Company are, their great *strength, beauty* and *durability.*

Unlike all others, they improve in appearance, while bronze, brass or wooden knobs commence to depreciate as soon as used. The Knobs manufactured by this Company do not require cleaning or polishing.

They are furnished in a variety of colors to harmonize with the finish or decoration of rooms.

They are warranted to wear as long as any knob made. This Company use the *New Boston Spindle.*

Send to the office of the Company for prices, or to any leading wholesale hardware dealer.



THIS cut shows the condition of a large percentage of the window having one-light sashes. It is caused by pushing on and consequently springing the meeting rails when raising or lowering the windows, and results in ultimately cracking the glass, thus entailing an expense for repairs greater than the cost of applying Wigger's Patent Sash Lifters. These Sash Lifters obviate this trouble and also prove a great convenience in operating this class of windows, as previously described in the columns of *The Iron Age.*

The steadily increasing demand for these goods proves their utility, and also that both Architects and their Clients appreciate their merits, and that many Architects have specified them on buildings to be completed this fall. We shall be pleased, therefore, to send samples, sample cards and circulars (with blank space for dealers' name), on application, as the goods will be supplied exclusively through the Builders' Hardware Trade.

WRITE FOR PRICE LISTS, &c.

BRAINERD & CO.,

MANUFACTURING AGENTS,

97 Chambers St., New York.

ELIZABETHPORT STEAM CORDAGE CO.,

Manufacturers of the Standard

TRADE MARK E **BINDER TWINE** TRADE MARK E

Also CORDAGE of all Kinds

46 South Street. NEW YORK.

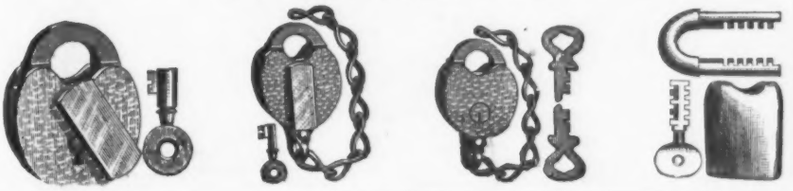
BRASS, MALL. IRON AND SCANDINAVIAN

PADLOCKS,

Manufactured by TOWER & LYON, 95 Chambers St., New York.

BEST QUALITY. LARGE VARIETY.

Railroad and other Padlocks made to order.



HALF SIZE.

Pat. Nov. 15 '87.

The Champion Safety Sash Locks.

These locks are being received with universal and enthusiastic approval by Architects, Builders, and Hardware Dealers everywhere. All bear testimony to their unequalled merits.

☞ Salesmen wanted.—For further information, address the sole manufacturers,

THE CHAMPION SAFETY LOCK CO.,

21 & 23 Champlain St., CLEVELAND, OHIO.

THE SIDE LOCK

E. W. GILMORE & CO.,

NORTH EASTON, MASS.

Strap and T Hinges,

CRATE HINGES AND HASPS,

Ship Scrapers, Iron Washers.

BRAIDED WIRE PICTURE CORD,

Tinned, Gilt and Gold, put up in small round boxes of 25 yds. and 25 feet, warranted full length; cord pulled out through hole in center of box.

SEND FOR PRICES.

SHEPARD HARDWARE CO.

HEADQUARTERS FOR BLIND HINGES, SHUTTER HINGES, GATE HINGES, ICE CREAM FREEZERS, FRUIT PRESSES &

MAMMOTH FOUNDRY BUFFALO, N.Y.

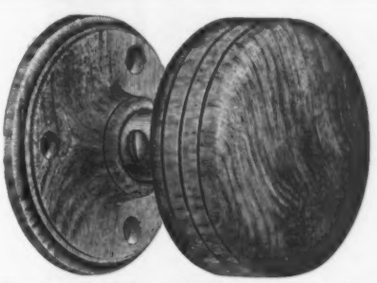
W. R. OSTRANDER & CO.,

21, 23 & 25 ANN STREET, NEW YORK,

Manufacturers of

SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC MECHANICAL & PNEUMATIC ANNUNCIATORS & BELLS

Complete Outfits of Speaking Tubes, Whistles, Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.



Patent Wood Door Knobs,

Escutcheons, Door Stops, Shutter Knobs, Drawer Pulls and Patent

CHECKING SPRING HINGES

for double-acting doors.

J. BARDSLEY,

59 ELM ST., NEW YORK, and

YALE & TOWNE MFG. CO.,

NEW YORK, BOSTON, PHILA. and CHICAGO.

SHUT YOUR BLINDS

by using our "Worker," which opens or closes them without opening the window. They can be procured at any hardware store or by sending to DODD SHUTTER WORKER CO. No. 26 Church St., N. Y. Agents wanted.

THE "AUTOMATIC"

BLIND AWNING FIXTURE.

They ventilate and cool the room, giving free circulation of air and refreshing shade, and do not interfere with the ordinary use of the blinds.

Attachable to Old or New Blinds.

Sold by all the Hardware Trade.

F. O. NORTH & CO., Manufacturers, 276 Devonshire St., Boston, Mass.

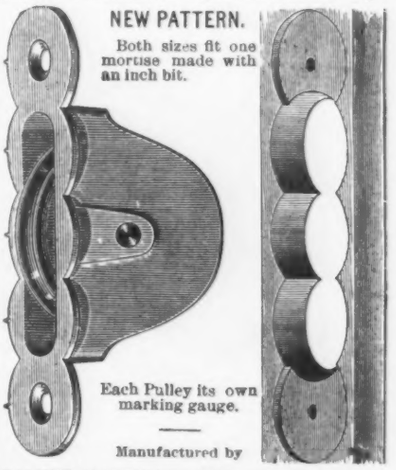
W. H. JACOBUS & CO., 90 Chambers St., New York.

MARKLEY, ALLING & CO., Chicago, Ill.

Palmer's Common Sense Frame Pulley.

NEW PATTERN.

Both sizes fit one mortise made with an inch bit.



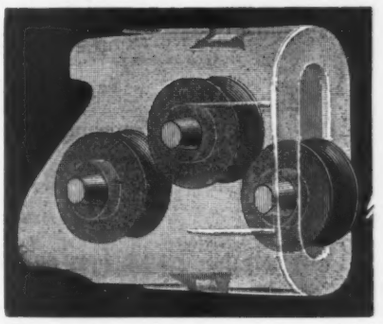
Each Pulley its own marking gauge.

Manufactured by

PALMER HARDWARE MFG. CO., Troy, N. Y.

Sole Eastern Agts., Peabody & Parks, Troy, N. Y.

IDEAL SASH PULLEYS.



From two to six of the Ideal can be applied to one of any other make on the market. A great saving of time and money to contractors and carpenters. Marking Gauges furnished with each lot of pulleys. Send for circular and price

STOVER MFG. CO,

Freeport, Ill.

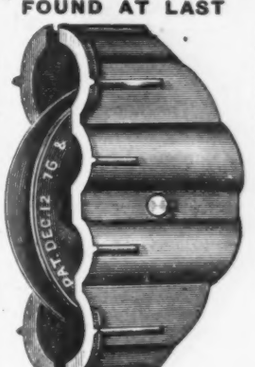
The Improved ANTI-SPLITTING

Empire Sash Pulley

FOUND AT LAST

THE BEST AND THE CHEAPEST.

Great Saving of Time and Material.



All with ¾ inch Steel Axles. These pulleys can be fitted to the window frames at the rate of 60 per hour. No chisels used. No screws required. It is held more firmly and makes a better finish than ANY OTHER PULLEY in the world.

MANUFACTURED BY

EMPIRE PORTABLE FORGE CO.,

COHOES, N. Y.

Manufacturers of the largest and best line of

Portable Forges and Hand Blowers.

FOR SALE EVERYWHERE.

The Queen Anne Screen Co., of Burlington, Vt., are manufacturing an

IMPROVED ADJUSTABLE WINDOW SCREEN,

with box panels. *The only one finished alike on both sides*, and both durable and cheap. Also a new frame for window screens and a new pattern of corners for both windows and doors, with sticks for frames.

Send for Circular and Price List.

TO THE JOBBING TRADE.

ROMEO, MICH., July 31st, 1888.

The undersigned have this day sold to THE TAYLOR & BOGGIS FOUNDRY COMPANY, of Cleveland, O., THE KIDDER SLIDE DOOR HANGER PATENT, Patterns and Good Will of the business, and while thanking you for the liberal patronage extended to us, we would ask for our successors a continuance of same.

We do this knowing you will be promptly and satisfactorily served, as our successors have made all the goods we have sold for the past seven years.

Yours Truly,

THE KIDDER SLIDE DOOR HANGER CO.

GENTLEMEN:

In pursuance of the above "we make our bow" as the sole manufacturers of, and would solicit your early and liberal orders for, the KIDDER SLIDE DOOR HANGER.

We shall keep constantly on hand a large stock of both sizes, that orders may be promptly filled, and shall endeavor by quality of goods and fair dealing to secure you as *regular* customers, and induce you to keep these goods constantly in stock.

Yours Respectfully,

THE TAYLOR & BOGGIS FOUNDRY CO.,

65 Central Way, Cleveland, O.

SAFETY LIP "VICTOR"

Anti-Friction

Steel Door Hanger and Rail

COMPACT. SIMPLE.
CHEAP. DURABLE.

Send for Catalogue.

Dealers using bracket track are requested to try our Steel Moody Hanger and Rail, it being cheaper and as good as any Hanger of this class.

VICTOR MFG. CO.,

NEWBURYPORT, MASS.

Carrier's Anti-Friction Steel Barn-Door Hanger.

This hanger is made entirely of Steel (with exception of wheels), which have Steel axles.

The wheels are V shape, thereby preventing any friction, for the reason that the side of the groove cannot touch the track and grind on the edges, as a straight groove would do.

IT CANNOT BE THROWN FROM THE TRACK.

If for any reason the door should be raised, the wheels remain on the track and ready to receive the door when falling back. No oil required—never screeches or grinds, and guaranteed to work easier than any Hanger on the market.

We call special attention to our Double Braced Steel Track (as shown in cut), and which has commended itself to all who have examined its merits, and must become the universal favorite. Can be put up with 1 in. No. 9 screws, each bracket (which are 15 inches apart) sustaining over 1000 lbs. weight, thereby carrying heavy doors with perfect ease.

WRITE FOR PRICES.

CRONK HANGER CO., Elmira, N. Y.

BOLLES, KIMBALL & WILDE, Boston, Mass., Agents for New England States.
J. C. McCARTY & CO., 97 Chambers St., New York, General Agents.

THE IRELAND MANUFACTURING COMPANY, Cincinnati, Ohio, Sole Manufacturers of

Reversible Rabbeted Mortise Door Locks,

THE MORRIS PAT-SASH LOCK. ALSO A GENERAL LINE OF BUILDERS' HARDWARE in all known finishes. Catalogues and lists furnished on application

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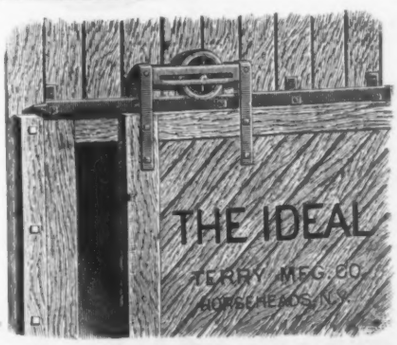


THE IDEAL

STEEL ANTI-FRICTION HANGER

SURE TO PLEASE THE TRADE.

Works very easy. Is STRONG, and combines ALL the BEST Features of an Anti-Friction Hanger.

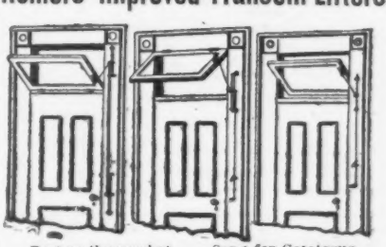
4-inch Wheel, 6-foot Run, $15.00 per doz. prs.
inch " 10-foot " 18.00 " " "

Would be Glad to Quote you Prices.

TERRY MANUFACTURING CO.,

HORSEHEADS, Chemung Co., N. Y.

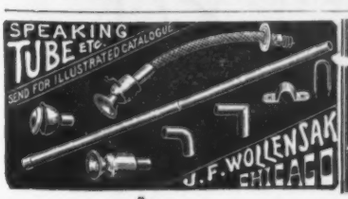
Reihers' Improved Transom Lifters



Best in the market. Send for Catalogue.

F. A. REIHER, Mfgr.,

11 and 13 S. Canal St., - CHICAGO, ILL



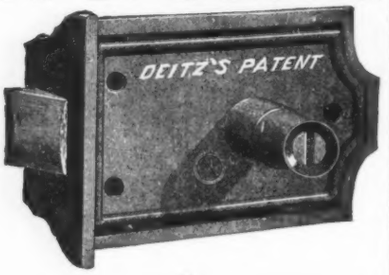
AMERICAN FOUNDRY PRACTICE.

By Thomas D. West.

One of the best practical works on the management of Cupolas and the Melting of Iron. Fully illustrated with plans and apparatus. Price, $2.50. Sent, postpaid, on receipt of price, by

DAVID WILLIAMS, Bookseller and Publisher,
66 and 68 Duane Street, - New York.

A. E. DEITZ.



No 109 LATCH.

J. C. McCARTY & CO., Agents,
97 Chambers and 81 Reade Sts.,
NEW YORK.

Factory, BROOKLYN, E. D., N. Y.

GARDEN CITY
DOUBLE-ACTING SPRING BUTTS.

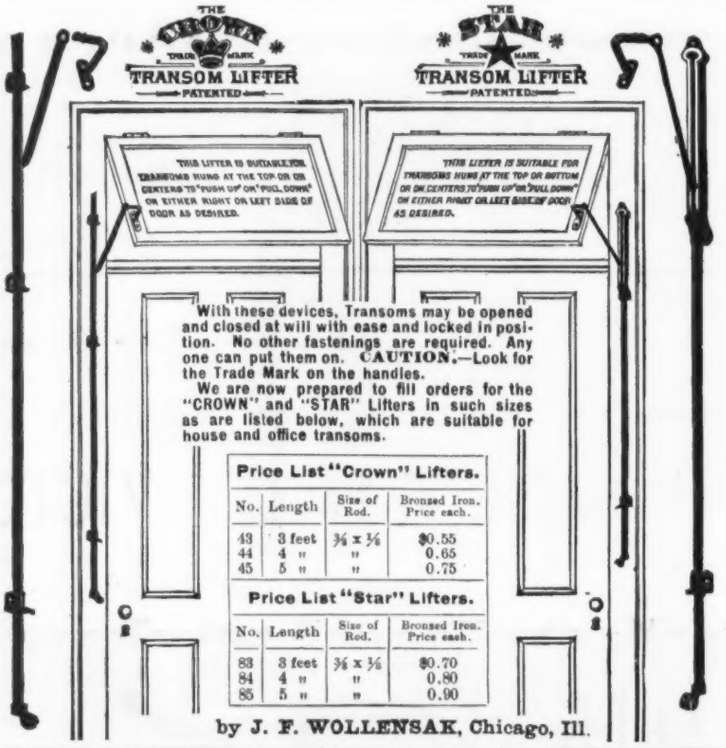
The Springs on this Butt are annexed to a single three-leaved Butt, instead of two three-leaved Butts, as in the Chicago. The strength of the Butt our only limit to size of Spring.

DOORS.	4 Japan'd Pair	4½ Jpd. N. Sq. Pair	24 Nkl Ptd Pair	34 Br. Pt. Pair	44 Bronze Pair
⅞ to 1⅛ in.	$1.00	$1.80	$ 2.70	$ 2.70	$ 8.00
1 to 1⅛ in.	2.00	2.75	5.00	5.00	13.00
1⅛ to 2 in.	4.00	5.00	7.50	7.50	20.00
2 to 2¼ in.	6.50	7.25	10.00	10.00	27.00
2¼ to 3 in.	8.50	9.50	13.00	13.00	35.00

MANUFACTURED BY
CHICAGO SPRING BUTT CO.
Lake and Union Streets, Chicago.

STEEL WIRE WHEELS
STRONGEST & MOST DURABLE
MADE. ADAPTED
FOR EVERY THING
THAT RUNS ON WHEELS.
MADE WITH & WITHOUT
RUBBER TIRE.

WESTON & CO. SYRACUSE, N.Y.



With these devices, Transoms may be opened and closed at will with ease and locked in position. No other fastenings are required. Any one can put them on. **CAUTION.**—Look for the Trade Mark on the handles.

We are now prepared to fill orders for the "CROWN" and "STAR" Lifters in such sizes as are listed below, which are suitable for house and office transoms.

Price List "Crown" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
43	3 feet	⅜ x ⅜	$0.55
44	4 "	"	0.65
45	5 "	"	0.75

Price List "Star" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
83	3 feet	⅜ x ⅜	$0.70
84	4 "	"	0.80
85	5 "	"	0.90

by J. F. WOLLENSAK, Chicago, Ill.

BOSLEY'S FLEXIBLE RUBBER
WEATHER STRIPS.

Solid Rubber—Molded into Shape. All One Piece—No Stitching—No Cementing.
—PATENT APPLIED FOR.—

No. 8, Size ⅜ in.
Price per foot, 5c.
No. 9, Size ½ in.
Price per foot, 6c.

No. 10, Size ¾ in.
Price per foot, 8c.
No. 11, Size 1 in.
Price per foot 10c.

These Flexible Weather Strips are put up in lengths of 50 feet, making a package about 6 or 8 inches wide—1000 feet making one foot square. Any one can apply them with tack, hammer and shears. We also manufacture the **Peerless Rubber Window Cleaners and Floor Scrubbers.** *Liberal Discounts to the Trade.*

D. W. BOSLEY & CO., Chicago, Ill.

O. W. BULLOCK & CO.

SPRINGFIELD, MASS.,

Manufacture nearly *ONE THOUSAND* styles, sizes and varieties of

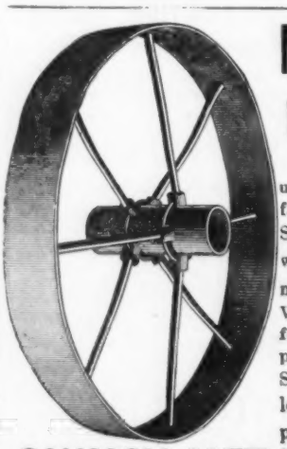
Extra Fine, Warranted Hand and Bench Tools,

for Watch, Clock, Piano and Cabinet Makers, Jewelers, Printers, Electrotypers, Dentists, Amateurs, Carpenters, Builders, Machinists and almost every kind of Mechanic or Artisan.

Bullock's Patent Combined Steel Blade Meat Chopper, Bone Saw and Steak Tenderer.

Just out! Sells at sight. Price per Dozen, net, $4.00. Write for price in gross and great gross lots.

Send Business Card and 4 cents in Stamps for Illustrated Price List.



METAL WHEELS
FOR ALL PURPOSES.

Conceded the best, and used by the leading manufacturers in the United States. The only Wheel in which the spokes are connected to other parts of the Wheel with enlarged tenons, formed in place by heavy pressure and while cold. Send for descriptive catalogue, and mention this paper.

QUINCY METAL WHEEL CO., Quincy, Ill.

SCRANTON FORGING CO.

SUCCESSOR TO

J. B. SAVAGE SOUTHINGTON, CONN.

CARRIAGE HARDWARE

AND

SPECIAL FORGINGS,

SCRANTON, PA.

MANUFACTURERS OF

AXLES.

WAGON AND CARRIAGE.

AXLES.

STANDARD AND FINE GRADES.

CLEVELAND AXLE MFG. CO.,

CLEVELAND OHIO.

ILLINOIS IRON & BOLT CO.,

Nos. 20 to 26 Main Street,

CARPENTERSVILLE, KANE CO., ILL.

MANUFACTURERS OF

BLACKSMITHS' TOOLS,

JACK SCREWS,

TRACK JACKS,

CARRIAGE MAKERS' VISES.

THIMBLE SKEINS, SADIRONS,

COPYING PRESSES AND STANDS, &C.

Carriage Hardware

LARGEST LINE OF

WROUGHT CARRIAGE FORGINGS,

MADE BY ANY HOUSE

Send fo Catalogue and Discount Sheet.

The E. D. CLAPP MFG., Auburn, N. Y

THE BUCKELL SAFETY CLEVIS.

FOR SALE BY THE HARDWARE TRADE.

Cheaper, Safer, More Simple and Durable,

THAN ANY CLEVIS MADE.

Have been in use five years and given entire satisfaction. Made in all styles and sizes, and much improved. Ask your dealer for them, or address

WHITFIELD & JACOBS,

SOLE MANUFACTURERS. PONTIAC, MICH.

FROST'S ANTI-RATTLER

Cut One-half Size.

Sample pair will be sent free to hardware or saddlery firms by addressing

STILES FROST

Boston, Mass.

P. F. BURKE,

Successor to C. F. Dewick & Co.,

Manufacturer of

PATENT STEEL

Toe Calks,

360 Dorchester Avenue, Boston, Mass.

H. D. SMITH & CO.,

Plantsville, Conn.,

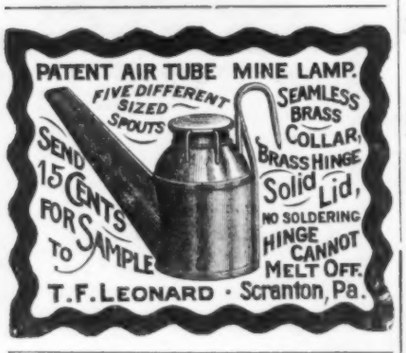
MANUFACTURERS OF THE BEST QUALITY

CARRIAGE MAKERS' HARDWARE

MANUFACTURE THE LARGEST VARIETY OF

FORGED CARRIAGE IRONS

Of Best Material and Workmanship.



METAL-PLATE WORK; ITS PATTERNS AND THEIR GEOMETRY. Also notes on metals, and rules in mensuration for the use of tin, i on and zinc plate workers, coppersmiths, boiler-makers and others. By C. T. MILLIS $3.00. Sent, postpaid, on receipt of price, by DAVID WILLIAMS, Publisher and Bookseller, 66 & 68 Duane Street, New York.

COVERT MANUFACTURING CO.

THE GREATEST EMPORIUM IN THE WORLD FOR THE BEST

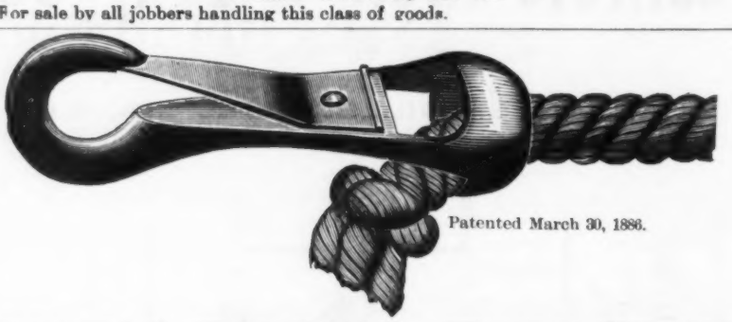
SNAPS, CHAIN, ROPE and WEB GOODS, &c.,

MANUFACTURED IS THE CELEBRATED WORKS OF THE

Covert Manufacturing Co.,

WEST TROY, N. Y.

For sale by all jobbers handling this class of goods.



Bronzed Southern Rope Snaps.

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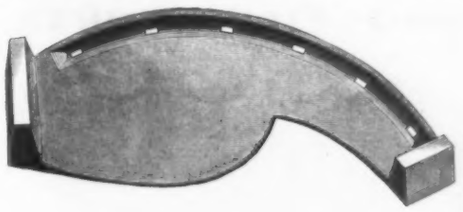
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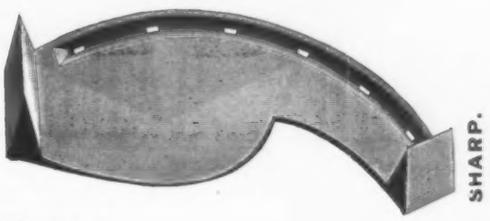
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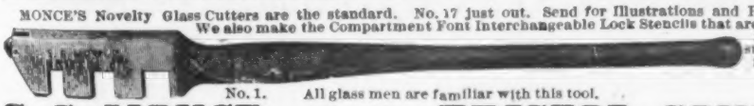

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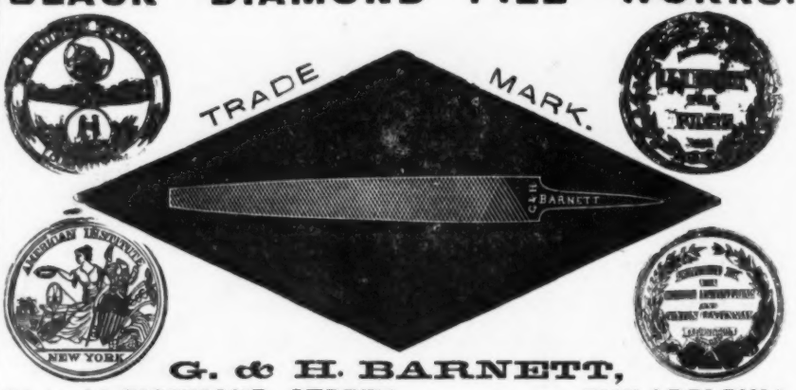

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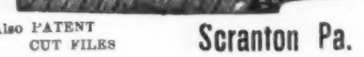

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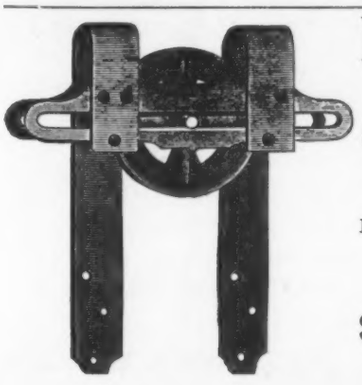

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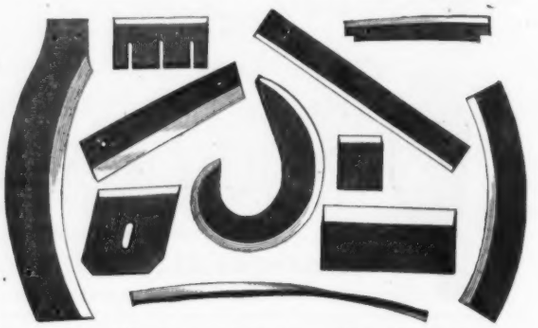

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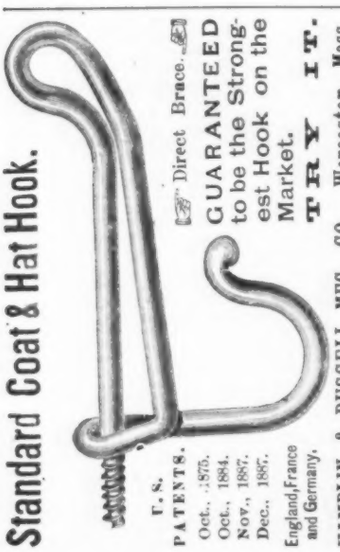

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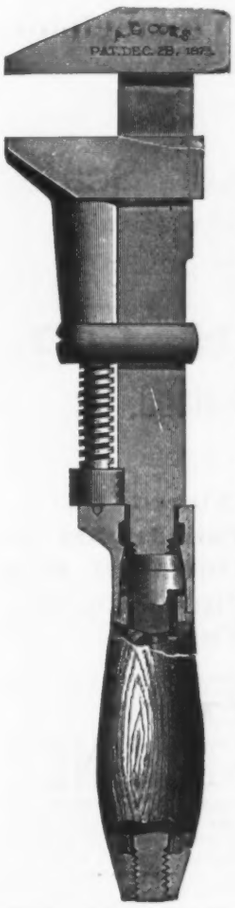

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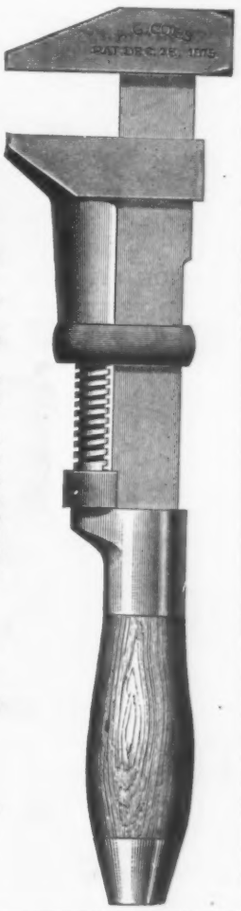

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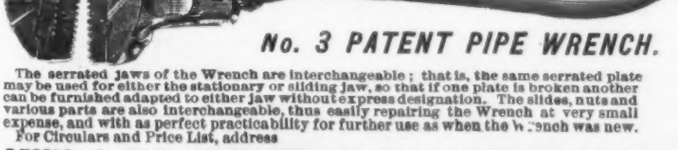

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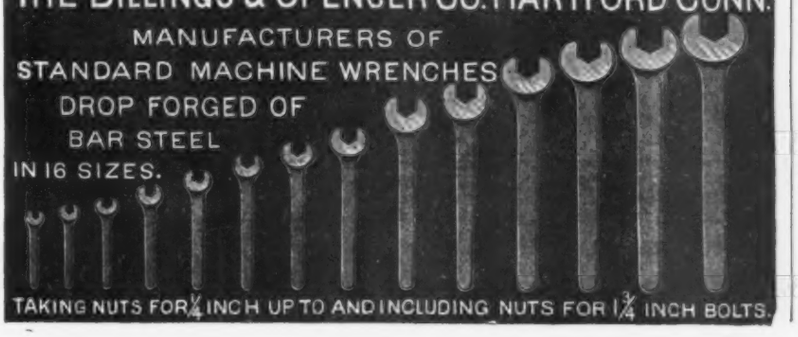

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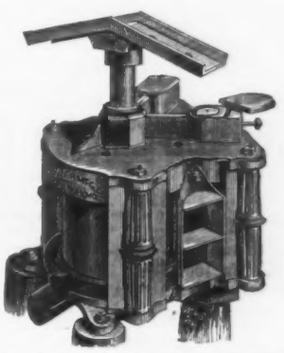

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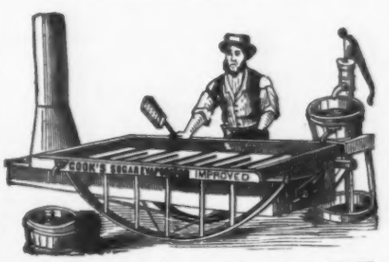

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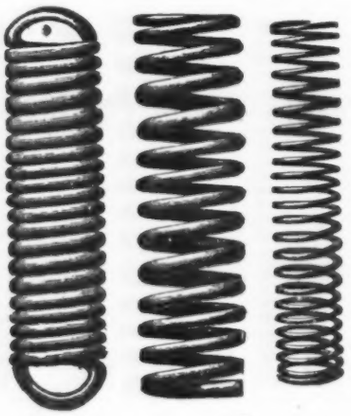

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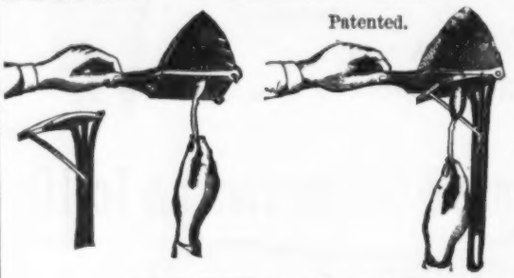
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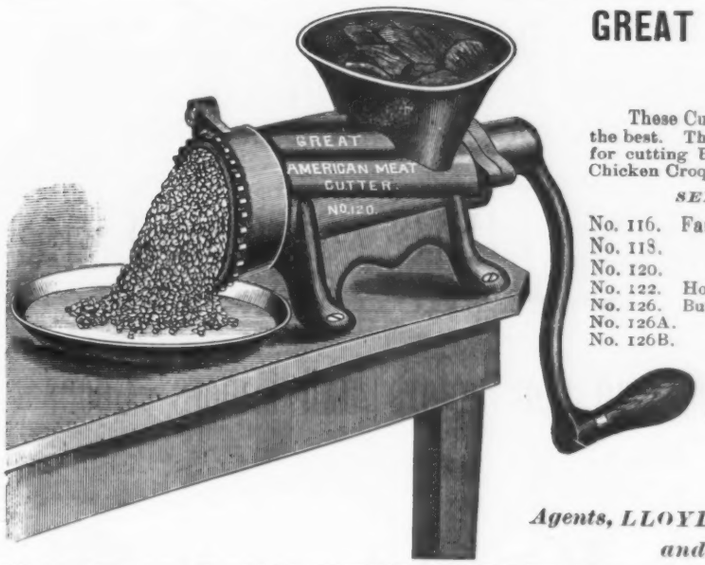

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No. 118.	" " "	"	3.00
No. 120.	" " with feet,	"	2.50
No. 122.	Hotel and Boarding-house Size,	"	4.00
No. 126.	Butchers' Size,	"	8.00
No. 126A.	" " Crank Handle,	"	20.00
No. 126B.	" " Power,	"	30.00

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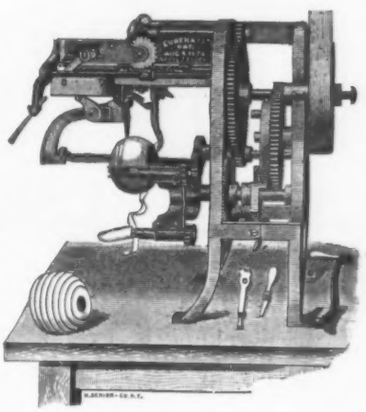

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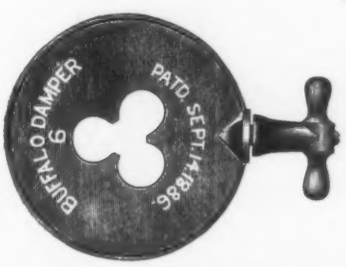

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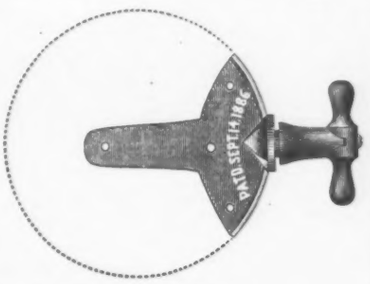

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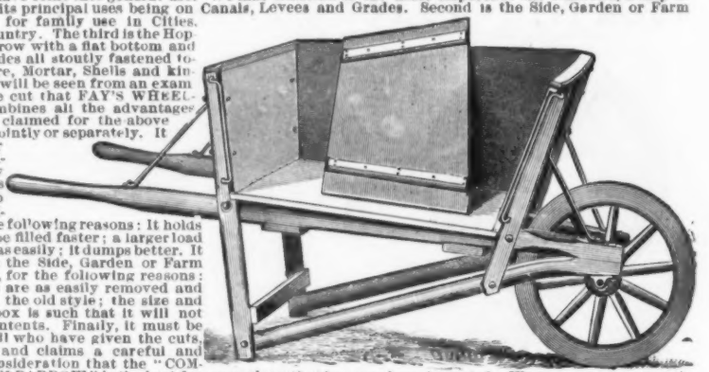
Classifying Wheelbarrows from the shape of that part which holds the load, there have been but three kinds which have come into general use. We may mention as the most important the Railroad, Dump or Tray Barrow, its principal uses being on Canals, Levees and Grades. Second is the Side, Garden or Farm Wheelbarrow for family use in Cities, Towns and Country. The third is the Hopper Wheelbarrow with a flat bottom and four flaring sides all stoutly fastened together, for Ore, Mortar, Shells and kindred uses. It will be seen from an examination of the cut that FAY'S WHEELBARROW combines all the advantages that may be claimed for the above styles, either jointly or separately. It has a larger range of usefulness than any of the old styles. It is superior to the tray wheelbarrow for the following reasons: It holds more; it can be filled faster; a larger load can be moved as easily; it dumps better. It is superior to the Side, Garden or Farm Wheelbarrow, for the following reasons: Its sideboards are as easily removed and replaced as in the old style; the size and shape of the box is such that it will not scatter the contents. Finally, it must be apparent to all who have given the cuts, explanations and claims a careful and thoughtful consideration that the "COMBINED WHEELBARROW" is the best for general use that has ever been invented. We manufacture Wheelbarrows of every description. If you are interested, we shall be pleased to send you our complete Catalogue and quote you prices.



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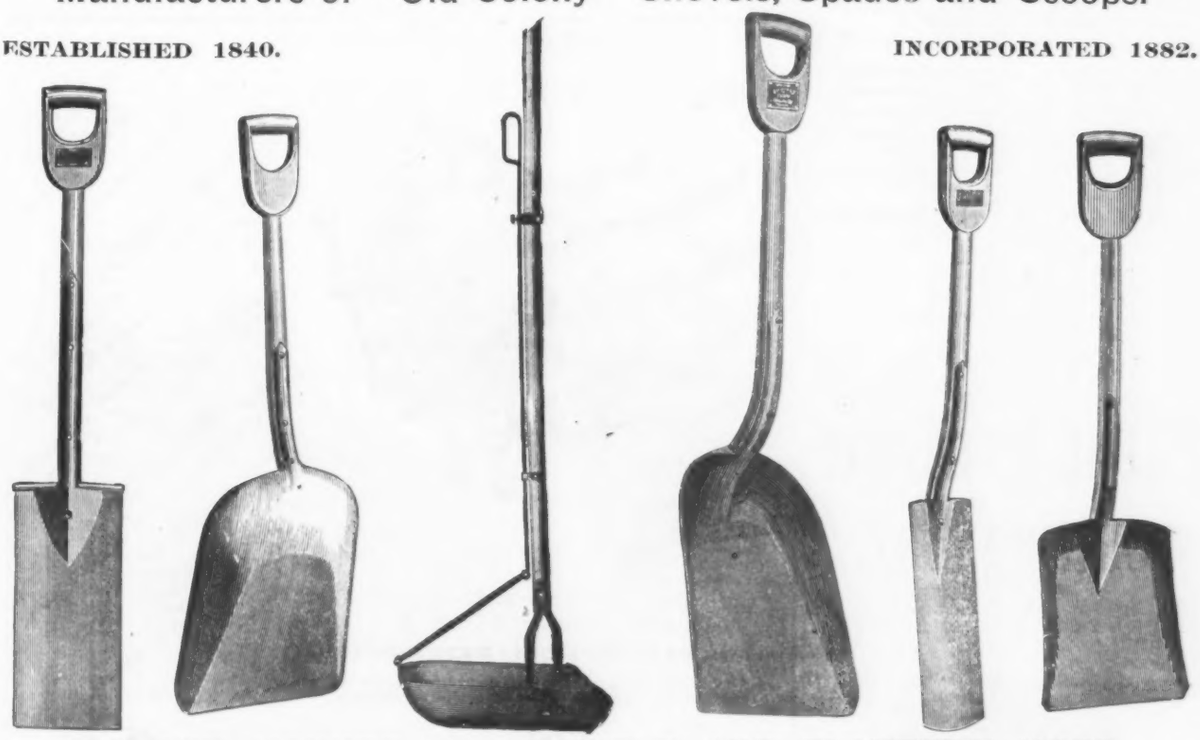

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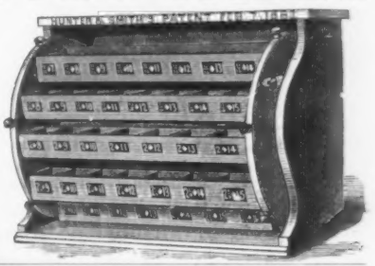

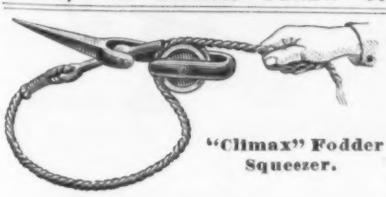

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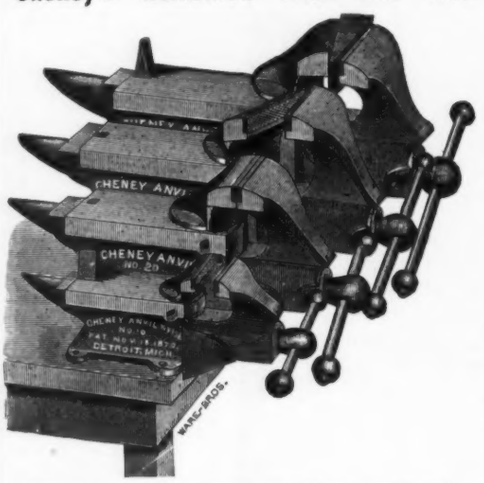

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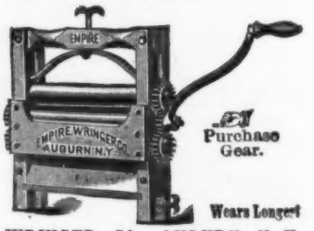

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THESE cards cover the lines having a large variety of sizes or numbers, save marking each package or article, in Retail stores, and are convenient for use in Wholesale Sample Rooms. They secure correct and uniform selling prices, for large and small buyers, save time, and are intended for years of constant use. Hence, no hardware dealer can afford to do without them, or spend the time to write and rule out cards by hand. They are printed in distinct type on the best paper, appropriately ruled with blue cross lines and red down rulings, for noting in pencil—List, Cost, Jobbing and Selling prices—as in specimen headings, shown herewith. Card A is mounted one side and B the other side of a tough, heavy card board, especially adapted for this use, protected on the edges by being *cloth-bound*, which saves framing. Two-thirds of them are 3 x 13½ inches. This size has been found convenient for hanging on a pilaster finish, or on any narrow surface, without hiding the goods. To hang or chain up each card, there is firmly inserted through the nickel-plated eyelet about ⅜ inch inside diameter. The comparative numbers of the different makers of cabinet and padlocks, rules, levels, etc., have been carefully corrected to the date of issue and many numbers added. Most houses require 6 to 12 cards extra, of **each Nos. 32 and 33**, to price lines not covered by the other numbers.

PIECED WARE. [Card No. 26-A.]

DESCRIPTION.	Size or No.	List.	Cost.	Job.	Sell.
BOILERS.					
COFFEE,	7 in.				
Bailed and	8 "				
Copper Bottom.	9 "				

DESCRIPTION AND PRICES.

Card No.		Size and Price per Card.
1	**A—Bar Iron,** Weight of Round, Square and Flat, per Foot and Tire per set. Western Classification and Prices of Extras on American, Norway and Swedes. **B—Bar Steel,** All kinds and Sizes with Prices of Extras. Horse and Mule Shoes, Size, Weight, No. in Keg. Toe Calks. Cut Nails, List of Extras.	5½x18 in. 40 Cts.
2	**A—Cut Tacks,** exact size cuts. Length. Number in a lb. **B—Large Head Carpet Tacks.** Gimp and Lace Tacks. Hungarian Nails, Hob Nails, Blued and Tinned, American and Swedes. Exact size cuts shown of all the above.	3x13½ in. 30 Cts.
3	**A—Shoe Nails.** Cigar Box Nails. Copper Tacks, Double-Pointed Tacks and Cuts, Glaziers' Points and Cuts. Barbed Blind Staples. **B—Patent Brads.** Finishing Nails. Blued Clout Nails. Tinned Clout Nails.	3x13½ in. 30 Cts.
4	**A—Iron Wood Screws.**	6x16 in. 40 Cts.
5	**B—Iron Wood Screws** (contd.) Iron Machine Screws. **A—Standard Carriage Bolts.**	3x13½ in. 30 Cts.
6	**B—Standard Carriage Bolts** (continued.) Plow Bolts. **A—Machine Bolts.** **B—Standard Tire Bolts.** Round and Flat Head Stove Bolts.	3x13½ in. 30 Cts.
7	**A—Philadelphia Carriage Bolts.** **B—Philadelphia Carriage and Tire Bolts.**	3x13½ in. 30 Cts.
8	**A—Square and Hexagon Nuts.** Wrought Washers. Size of Bolt, size of Hole, Width, Thickness, number in 100 lbs. **B—Coach or Lag Screws.** Superior and Norway Axle Clips.	3x13½ in. 30 Cts.
9	**A—Bright Screw Hooks.** Belt Hooks. Blake's Belt Studs. **B—Bright Screw Eyes.** Gate Hooks and Eyes. Cornice Hooks and Eyes.	3x13½ in. 30 Cts.
10	**A—Plate Casters and Bed Casters.** **B—Wrought Hooks and Staples.** Trap Door Rings. Hasps and Staples, and Staples only.	3x13½ in. 30 Cts.
11	**A—Saws.** Hand, Panel and Rip. Combination and Back. Disston's and W. M. & C.'s corresponding numbers and "Our Brand." **B—Saws.** Back, Compass, Pruning, Kitchen, Butchers' Bow and Blades. Framed Wood Saws and Blades.	3x13½ in. 30 Cts.
12	**A—Chisels.** Sticks, Socket Framing, Socket and Tanged Firmer, Corner. **B—Turning Chisels and Gouges,** Socket and Tanged Firmer Gouges.	3x13½ in. 30 Cts.
13	**A—Cast Steel Augers and Bits.** Boring Machine Augers. Jennings' Auger Bits. **B—Bit Stock Drills,** Gimlet Bits, German Pattern, Double Cut and Countersink. Center Bits. Clark's Expansive Bits.	3x13½ in. 30 Cts.
14	**A—Hammers.** Adze Eye, Bell Face, Joiners', Steel Face and Claw, Riveting, Farriers', Blacksmiths', Machinists', Engineers. **B—Hammers.** Tack, Masons', Sledges, Miscellaneous. **Hatchets,** Shingling, Lath, Half, Claw, Broad or Bench, Hunters'.	3x13½ in. 30 Cts.
15	**A—Files.** Bastard, Mill, Flat, Hand, Half-round, Round, Square, Knife, Warding. Second Cut, Mill, Flat, Hand, Half-round. Smooth, Flat and Hand. **B—Files.** Smooth, Half-round, Round, Cabinet, Pit Saw, Hook Tooth, Gin Saw, Band Saw, Cant, Taper, Stubb's Taper. **Rasps,** Cabinet, Wood, Shoe, Horse.	7x15 in. 50 Cts.
16	**A—Rubber and Hemp Packing.** Gaskets or Rings. Rubber Hose. **B—Leather and Rubber Belting.**	3x13½ in. 30 Cts.
17	**A—Window Glass.** List Prices and Number Lights in a Box. Also ruled columns for other Wholesale and Retail rates. **B—Sash, Doors and Blinds.** List Prices.	6x18½ in. 40 Cts.
18	**A—Hinges.** Strap, Light and Heavy. T, Light, Heavy and Extra Heavy. Hinge Hasps, Screw Hook and Strap. **B—Screw Hook and Eye Hinges.** Barn Door Hangers. Checked Back. Kidder's, Anti-Friction, Wrought Frame. Barn Door Stay Rollers, Rail, Pulls, Latches. Sliding Door Rail.	3x13½ in. 30 Cts.
19	**A—Wrought Butts.** Narrow, Loose Pin, Light Inside Blind. **B—Loose Pin Butts.** Plain, Japanned and Plated Tips.	3x13½ in. 30 Cts.
20	**A—Loose Joint Butts,** Plain, Japanned and Plated Tips. **B—Table Hinges,** Bronzed Iron Blind Butts. Brass Butts, Narrow, Middle, Broad and Desk. Width when open, given of all.	3x13½ in. 30 Cts.
21	**A—Door Bolts,** Barrel, Square Spring, Foot, Chain. **B—Door Bolts,** Flush, Neck and Miscellaneous kinds.	3x13½ in. 30 Cts.
22	**A—Screw Drivers,** Flat and Round Blade, Ratchet, Clark's. Screw Driver Bits. Countersinks, Reamers', Belt or Saddlers' Punches. **B—Rules. Wrenches.**	3x13½ in. 30 Cts.
23	**A—Hooks,** Coat and Hat, Wardrobe, School-house, Harness, Clothes-line. **B—Shelf Brackets. Drawer Pulls.**	3x13½ in. 30 Cts.
24	**A—Wood Planes.** Plane Irons, Cut and Double. **B—Patent Planes.** Patent Plane Irons.	3x13½ in. 30 Cts.
25	**A—Woodenware and Baskets.** Alphabetically arranged.	7x22 in. 60 Cts.
26	**B—Woodenware** (contd.) Alphabetically arranged. **A—Pieced Tinware.** Alphabetically arranged. **B—Stamped Tinware.** Alphabetically arranged.	7x22 in. 60 Cts.
27	**A—Japanned Tinware.** Alphabetically arranged. **B—Granite or Agate Ironware.** Planished Ware. Stove and Hollow Ware. All Alphabetically arranged.	7x22 in. 60 Cts.
28	**A—Mortise Door Locks,** Latches, Knobs and Escutcheons. **B—Rim Door Locks,** Latches, etc. **A—Padlocks,** Japanned, Wrought Iron, Bronzed Iron, Brass and Jail.	7x22 in. 60 Cts.
29	**B—Complete Comparative List of Corresponding Numbers of Padlocks,** Mallory, Wheeler Co., Wm. Wilcox Mfg. Co., Russel & Erwin Mfg. Co., Norwich Lock Mfg. Co., Nimick & Brittain Mfg. Co. Revised to July, 1885.	6½x22½ in. 60 Cts.
30	**A—Cabinet Locks,** Drawer, Chest, Cupboard and Trunk. Cabinet Keys. **B—Complete Comparative List of Corresponding Numbers of Cabinet Locks,** Eagle, Corbin, Parker, Gaylord. Revised to July, 1885.	7x24 in. 60 Cts.
31	**A—Length and number of Nails to the pound.** Number of feet in a bundle of Hoop, Scroll and Band Iron Number of feet of Wire in a pound. Coil or Cable Chain, weight per 100 feet and proof in tons. Bright Coil and Halter Chain and corresponding No. of Wire. Sash weights and line required for common sized window. **B—Miscellaneous Tables.** Showing Nnmber of Copper Rivets and burs in a pound. Size of Skates compared with Shoes. Scale Beams, poise or weight needed for each. Brass Kettles, size, weight and capacity. Strap and T Hinges, weight and number packed in a barrel. Comparative Nos. of leading makers of Rules and Levels. Revised to July, 1885. Manilla Rope, feet in a pound weight of coils, breaking strain, etc.	6x22 in. 60 Cts.
32	Is adapted for filling in with any line of goods. It is ruled both sides with columns headed respectively—"Description," "Size or No.," "List," "Cost," "Job," "Sell."	4x14 in. 20 Cts.
33	As No. 32, but half size, for *smaller* lines of goods.	4x7 in. 10 Cts.
34	**A—Wire Nails,** Exact Size Cuts. **B—Wire Nails,** List Prices and Number in a pound.	5½x9½ in. 30 Cts.
35	**A—Gas Pipe,** Black and Galvanized. List Prices, Weight per foot and number threads per inch of screw. Also Malleable Pipe Fittings *illustrated*. **B—Is** ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 30 Cts.
36	**A—Plate and Metals.** Sizes of Tin, Number of Sheets in Box, Weight and Gauge. Block Tin, Lead, Solder, Antimony, Slab and Sheet Zinc. **B—Sheet Iron and Copper.** Iron, Common, Smooth, Galvanized, American and genuine Russia. Copper, Sheathing, Planished and Copper Bottoms and Soldering coppers.	5½x9½ in. 30 Cts.
37	**A—Malleable Iron.** *Illustrated.* Whiffletree Ferrules. Tongues, Hooks, Couplings and Plates. T and Shaft Irons. Shaft, Body, Perch and Neck-yoke Loops. **B—Malleable Iron.** *Illustrated.* Pole and Neck-yoke Tips. End or Tail Board Plates. Washers and Nuts. Stake Rings and Irons. Wagon Box Spring Irons. Check and Footman Loops. Corner Irons. Spring and Axle Blocks.	5½x18 in. 40 Cts.
38	**A—Malleable Iron.** *Illustrated.* Axle Yokes. Wear Irons. Wrenches. Carriage Rim Bands. Oar or Row Locks. **B—Malleable Iron.** *Illustrated.* Step Plates, Carriage, Wagon and Cutter Steps. Thumb Nuts. Sand Bands.	5½x18 in. 40 Cts.
39	**A—Handles.** *Illustrated.* Auger, Cross-Cut Saw, Axe, Adze, Hatchet, Hammer, Pick, Sledge. **B—Is** ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 30 Cts.
40	**A—Wire Cloth and Netting.** *Illustrated.* Plain, Painted and Galvanized. **B—Is** ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 30 Cts.

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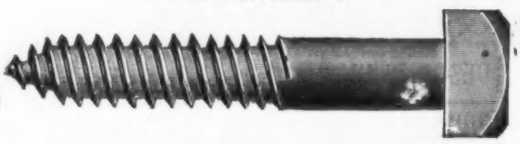

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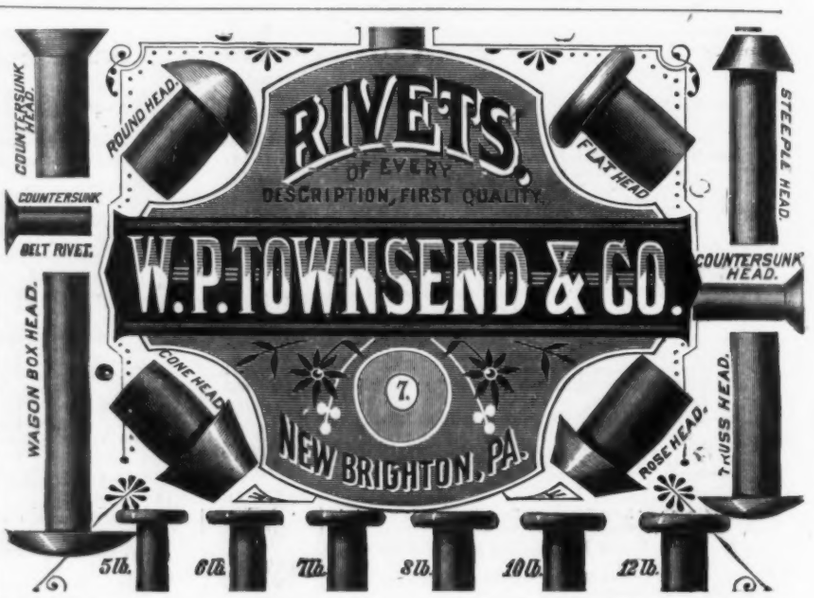

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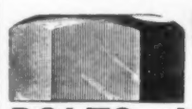

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Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philp C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Etting Edward J., Philadelphia, Pa.
Walbaum W. H. & Co., Philadelphia Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia.
Howan, John L. & Co., Philadelphia. Pa
Lea J. Tatnall & Co., Philadelphia.
Mohr J. J., 430 Walnut, Phila.
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila., Pa,
Hart, Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co., Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 100 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig. *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet. *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co. Newburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Wast, Foos & Co., Springfield, O

Lawn Sprinklers.
McGowan, John H. & Co. Cincinnati, O.

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. F., Athol, Mass.

Locks and Knobs. *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Ireland Mfg. Co., Cincinnati, O.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co., Bridgeport.
Quackenbush, Abram, New York.
Yale & Towne Mfg. Co., Stamford

Machinery.
Adt John & Son, New Haven, Conn.
Barnes W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. F., 45 Dey, N. Y.
Brettell & Wilson, Rochester, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N.Y.
Bullard, E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray's Ferry F'd'y & Boiler Co., Phila. Pa.
Hendey Machine Co., Torrington Ct.
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge, Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Nicholson & Waterman, Providence, R. I.
Pedrick & Ayer, Philadelphia, Pa.
Pryibil P., 467 W. 40th, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers Wm. & Co., Phila.
Snell, Henry I., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. F'd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. & Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Meat Choppers.
Enterprise Mfg Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N.Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard, R. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Thomas, Dago J., 1 Broadway, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co., Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co., 139 Green'ch. N.Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Wash'ton N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y.

Norway Shapes, *Rollers of.*
Naylor & Co., 99, John, N. Y.
Rowland William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester.
Wilson J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn

Oil Stones.
A. F. Pike Mfg. Co., Pike Station, N.H.
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardner, Mass.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt Carmel, Conn.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-Spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co, N.Y.

Padlocks.
Fraim, E. T., Lancaster, Pa.
Tower & Lyon, 95 Chambers, N. Y

Pails.
Brower, John, New York.

Paint.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton
Stocking E. B., Washington, D. C.

Perforated Metal.
Throop Perforating Co., Buffalo, N. Y

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Picture Cord.
Gilmore, E. W. & Co., No. Easton, Mass.

Pig Iron.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of.*
Donaldson Iron Co, Emaus, Pa.
Fox John, 160 Broadway, N. Y.
Morris, Tasker & Co., 224 South Third street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co. St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N. Y

Post Hole Diggers.
Lagonda Mfg. Co., Springfield, O.

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Powder.
King's Great Western Powder Co., Cincinnati, Ohio.

Power Hammers.
Helden R. A. & Co., Danbury, Conn.
Bradley & Co., Syracuse, N. Y.
Dienelt & Eisenhardt, Philadelphia
Duncan, W. P. & Co., Bellafonte, Pa.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Presses, Power. *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
Keystone Engine and Machine Wks Phila., Pa.
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Easthampton, Mass.

See Alphabetical Index, Page 90.

Pumps; Force.
Myers P. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y.

Pumps. *Makers of.*
Columbiana Pump & Machine Co.
Douglas W. & B., Middletown, Conn.
Goulds Mfg. Co., 60 Barclay, N. Y.
Silver & Deming Mfg.Co., Salem, O.
Union Mfg. Co., 103 Chambers N. Y.
Water Elevator & Purifier Co., Cincinnati, O.

Punches.
Fulton Iron and Engine Works, Detroit, Mich.

Punching and Shearing Presses.
Long & Allstatter Co., Hamilton, O.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown, Pa.
Joliet Steel Co., 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Cowles Mfg. Co., Bridgeport, Ct.

Razors.
Dame, Stoddard & Kendall, Boston, Mass.
J. R. Torrey Razor Co., Worcester Mass.

Razor Strops.
Tower & Lamont, Rochester, N. Y.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia,

Refrigerator Trimmings.
Brainerd & Co., 97 Chambers St., N. Y.

Rivets.
Dissoway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rock Drills
Clayton Air Compressor Works, Brooklyn, N. Y., and Dey, N. Y.

Rolling Mill Machinery.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co., Pittsburgh, Pa.
Seaman, Sleeth & Black, Pittsburgh.

Roofing.
Garry Iron Roofing Co., Cleveland, O.

Rope Snaps.
Pratt & Letchworth, Buffalo, N. Y.

Rules, *Manufacturers of*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Balances.
Caldwell, W. H., Rochester, N. Y.

Sash Cords and Chains.
Morton Thos., 65 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Claflin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers st., New York.
Ives H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Cohoes, N. Y.
Palmer Hardware Mfg. Co, Troy, N. Y.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury, Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Truax, Chauncey S., 64 College Place, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons, Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Riehlé Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Ellrich Hdw. Mfg. Co., Plantsville, Conn.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws. *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S., 205 Quarry, Philadelphia
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls, N. Y
King, O'Connor & Co., Baltimore, Md.

Scythe Stones and Whetstones
A. F. Pike Mfg. Co., Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting. *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 27 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Schollhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.
Rowlands Sons, T., Philadelphia, Pa.
Sanford Fork and Tool Co., Terre Haute, Ind.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown, Conn.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen 105 Walker, N. Y.
Wollensak, J. F., Chicago, Ill.

Sporting Goods.
Field, J. B. & Co., Detroit, Mich.
Shields, Jno. & Co., Brookline, Mass.

Speiter.
Manning & Squier, 111 Liberty, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.

Spring Hinges.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Strops.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon Richard, 24 Columbia, N. Y.
Duncan W. P. & Co., Bellefonte Pa.
Long & Allstatter Co., Hamilton, O.

Steam Heating.
Broomell & Sanks, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O.
McGowan John H. & Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk.

Steam Traps.
Aller Amos, 109 Liberty, N. Y.

Steel Figures and Alphabets.
Stutzman J. M., 181 William, N. Y.

Steel Importers.
Abbott Jere & Co., N.Y. & Boston.
Hobson Francis & Son, 97 John, N. Y.
Jessop Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West, N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones R. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N.Y.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John, N. Y.
Jones, R. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller, Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss F. W., 83 John, N. Y.
Naylor & Co., 99 John, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N.Y.
Wardlow S. & C., Sheffield, Eng
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Kilson & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beavor-Webb, J., 145 Broadway.
Hicks & Dickey, Philadelphia, Pa.

Steel Nails
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs. *Manufacturers.*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N. Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng.
91 John, N. Y.
Lang John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenneld, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops
J. R. Torrey & Co., Worcester, Mass.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Dissoway & Henderson 165 Greenwich N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Trurant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W., Springfield, Mass.
Ellrich Hdw. Mf. Co., Plantsville, Ct.
Fulton Iron & Eng. Wks. Detroit, Mich.
Hoague, J. B & Co., Chicopee, Mass
Humphrey Tool Co., Warren, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Transom Lifters.
Reiber F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks. *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Riehle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co. 19 Mur'y, N. Y.

Tubes, Steel.
Lang John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Type Writers.
Hammond Type Writer Co., 75-77 Nassau, N. Y.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Lang John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 23 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers.
Lanman, E. B. Columbus, O.
Mason Iron Co., Philadelphia, Pa.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York.

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

Wheelbarrows.
Bryan Mfg. Co., Bryan, Ohio.
Pugsley & Chapman, 8 Liberty, N. Y

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.

Wheels.
Quincy Metal Wheel Co., Quincy, Ills.
I. A. Weston & Co., Syracuse, N. Y

Window Cleaners.
Bosley, D. W. & Co., Chicago.

Window Screens.
Darby, Edw. & Sons, Philada., Pa
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren St., N. Y.
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Trenton Iron Co. Trenton, N. J.
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Wire Cloth.
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Wire Door Mats.
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S. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis
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Wickwire Bros., Cortland, N. Y.

Wire Machinery.
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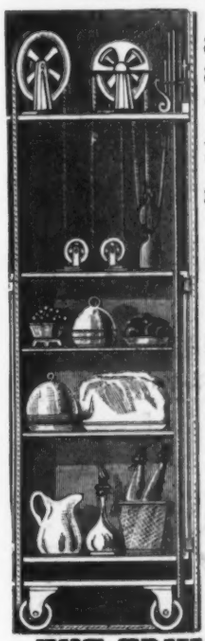

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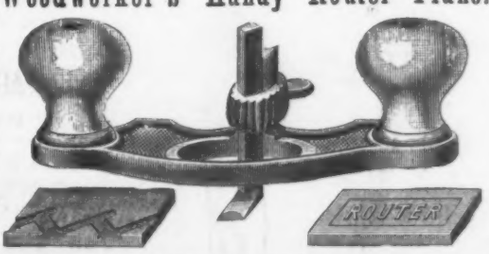

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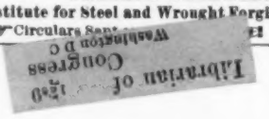

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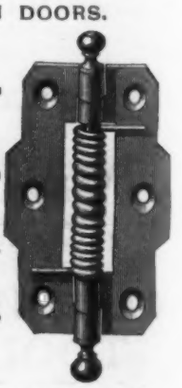

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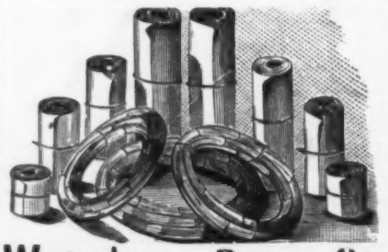

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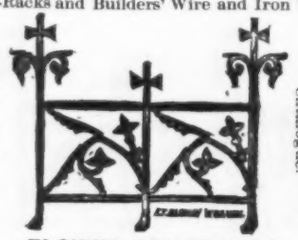

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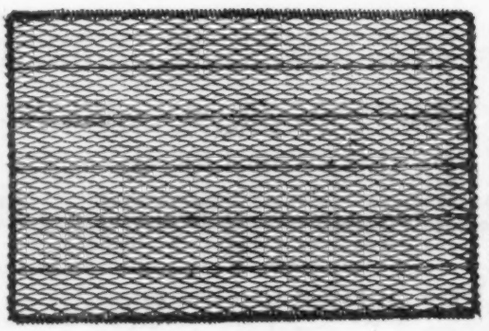

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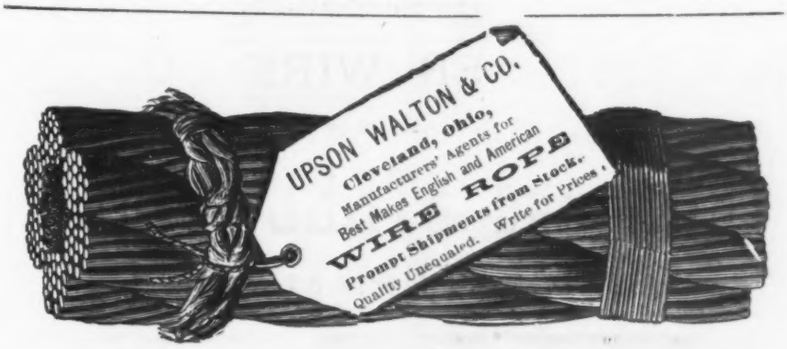

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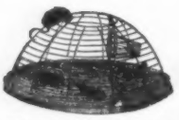

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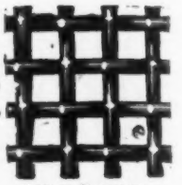

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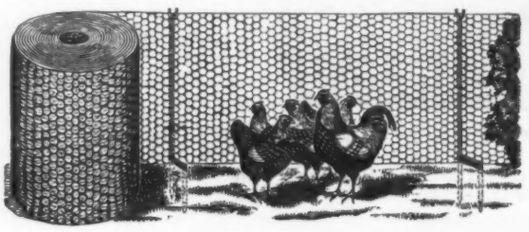

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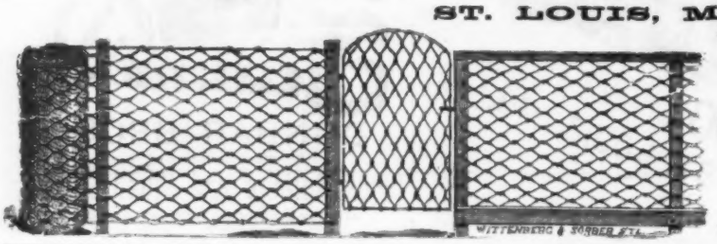

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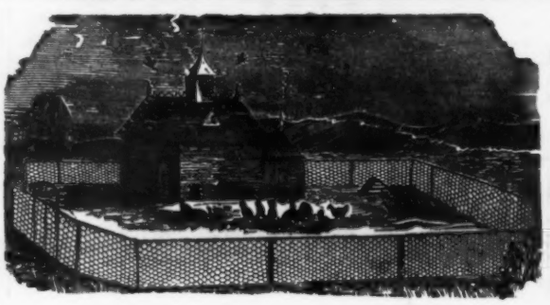

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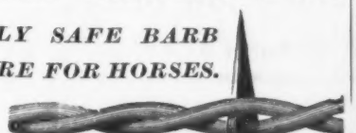

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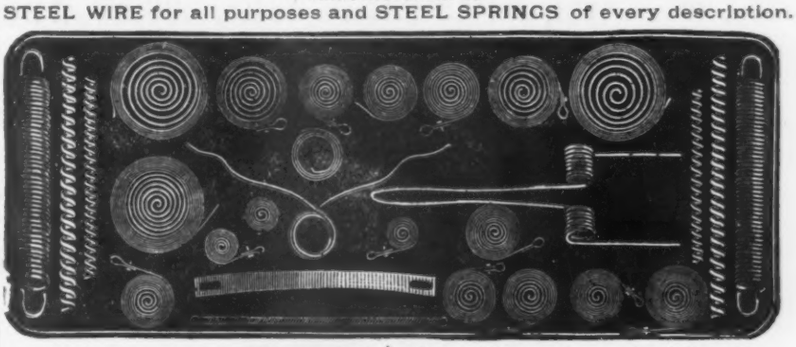

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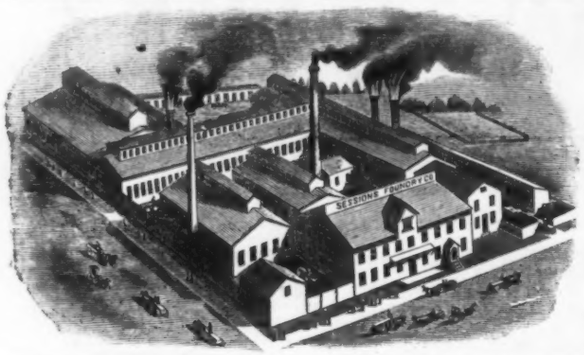

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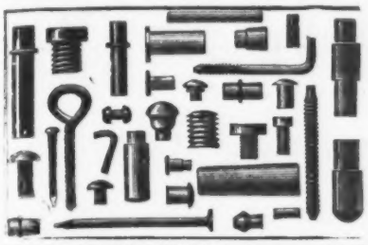

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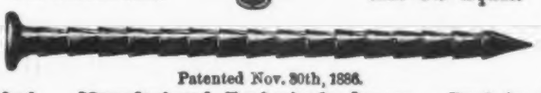

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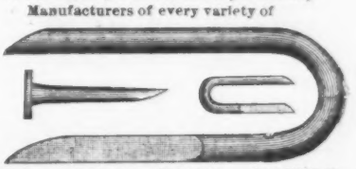

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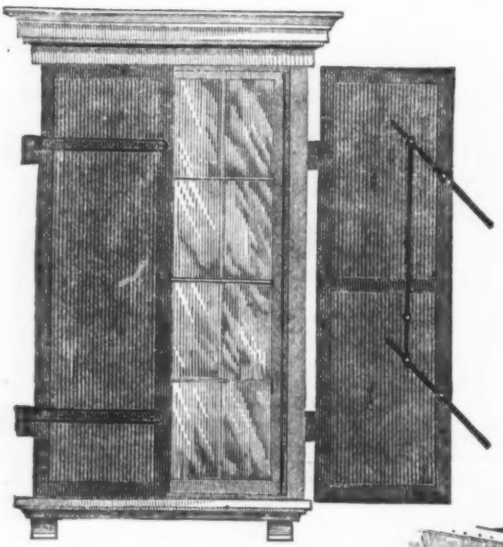

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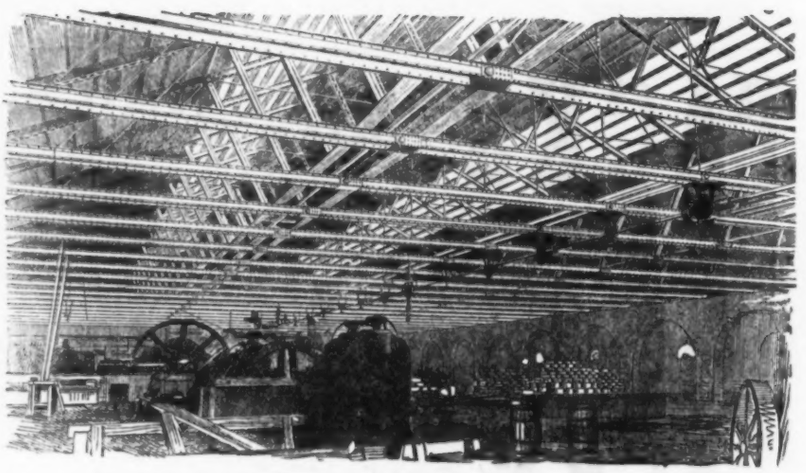

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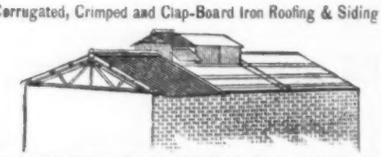

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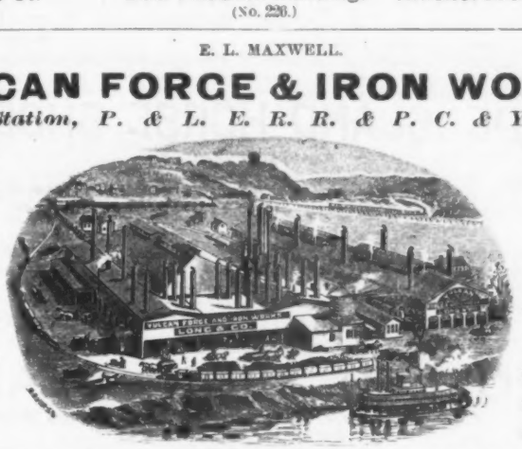

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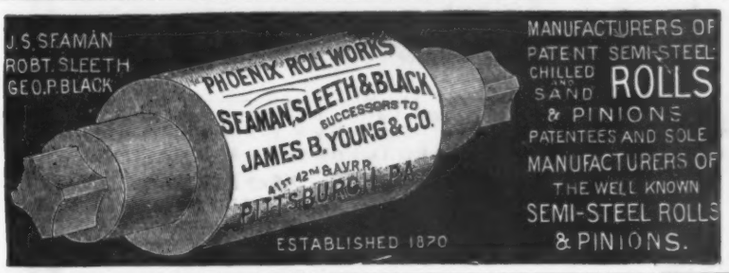

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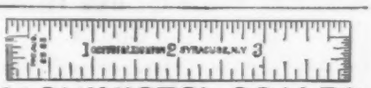

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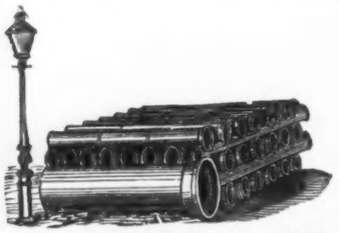

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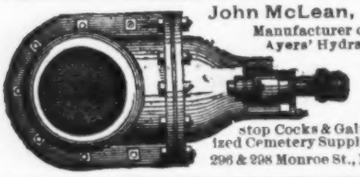

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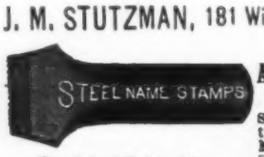

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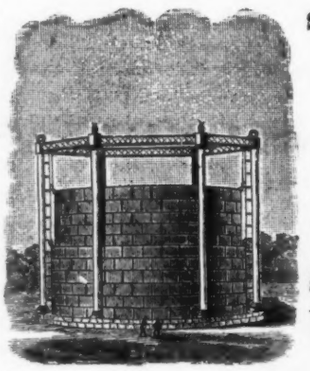

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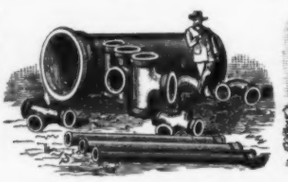

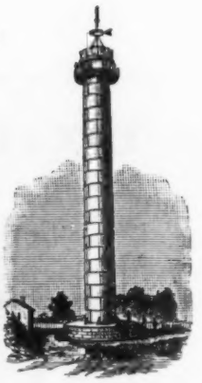

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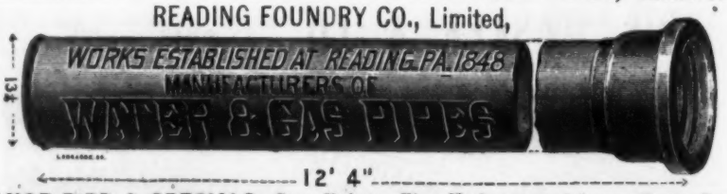

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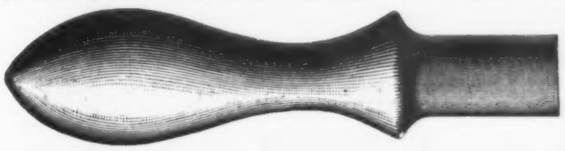

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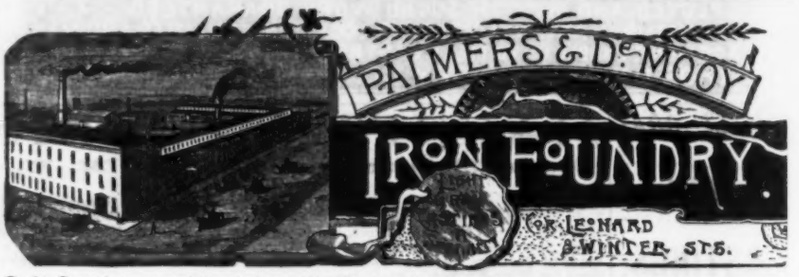

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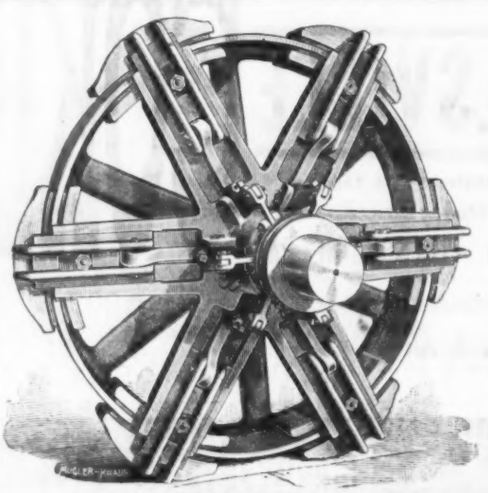

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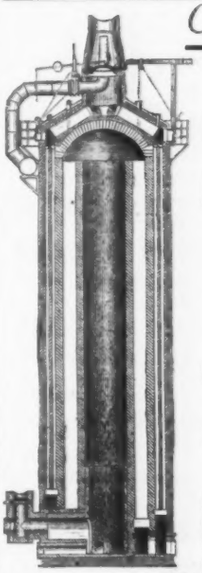

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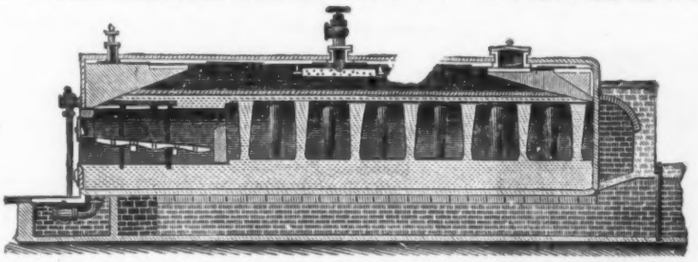

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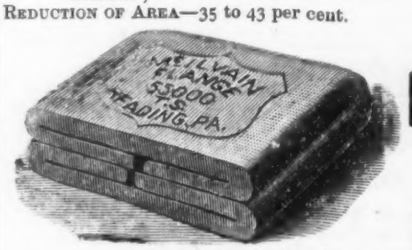

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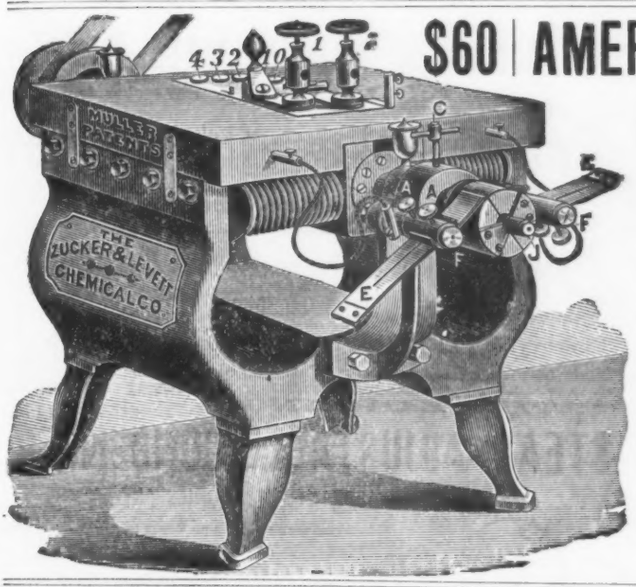

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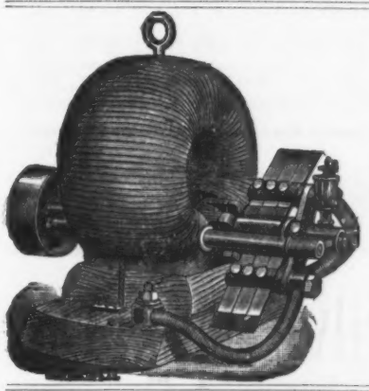

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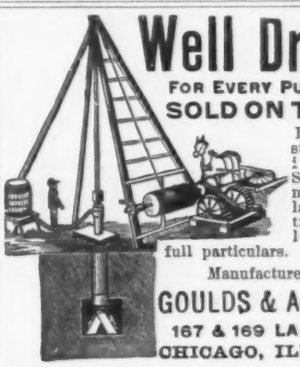

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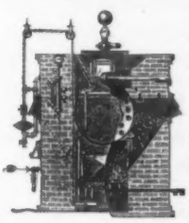

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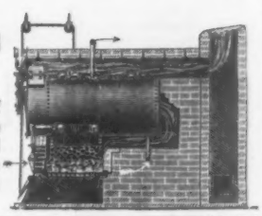

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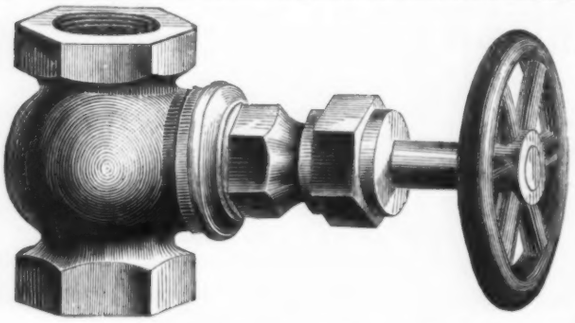

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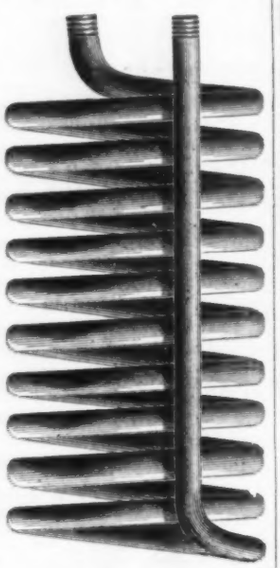

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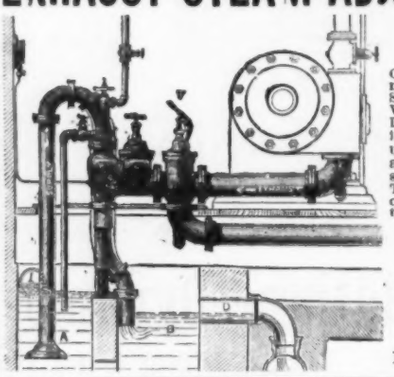

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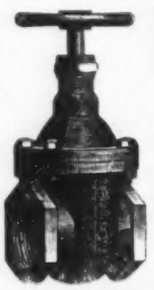

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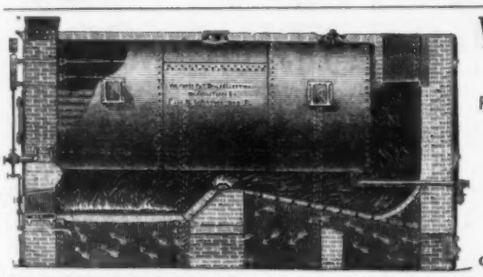

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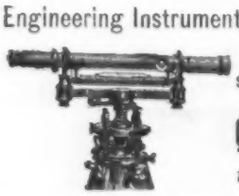

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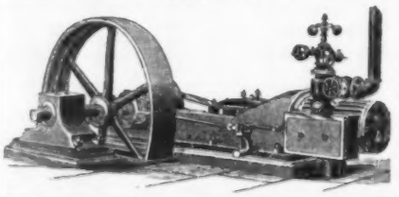

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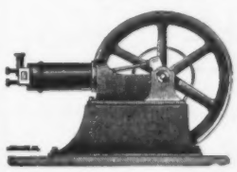

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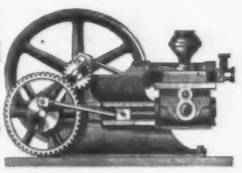

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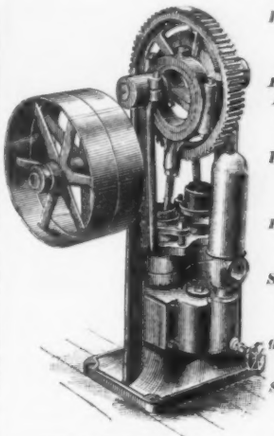

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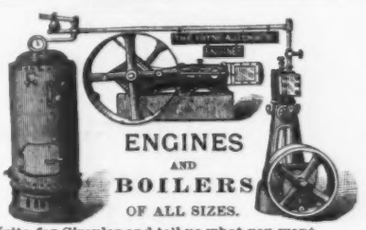

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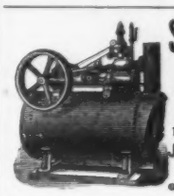

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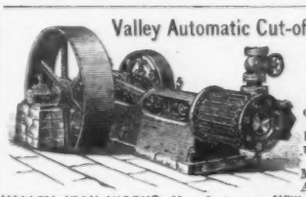

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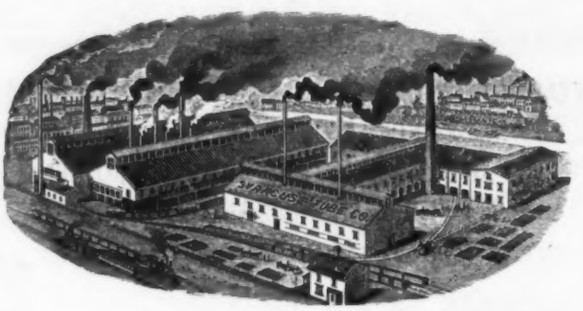

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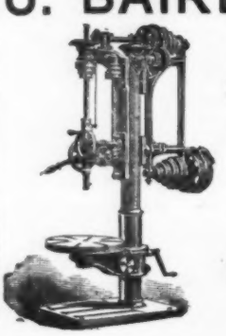

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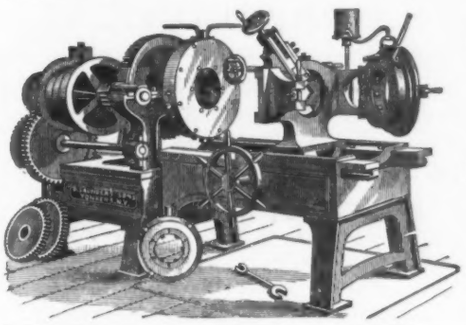

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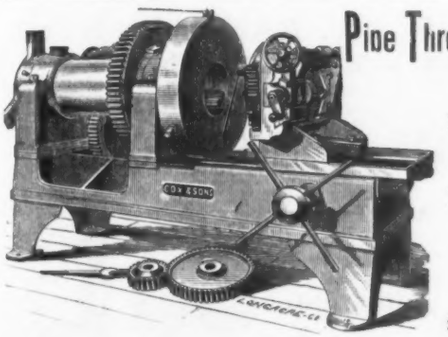

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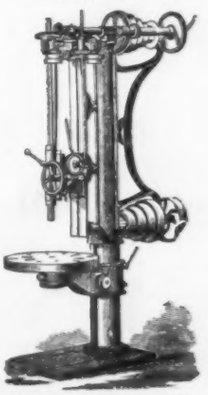

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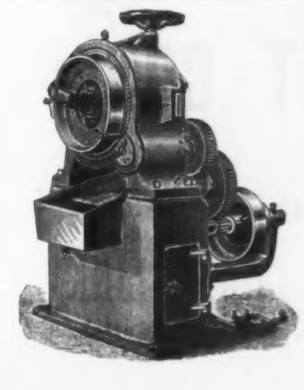

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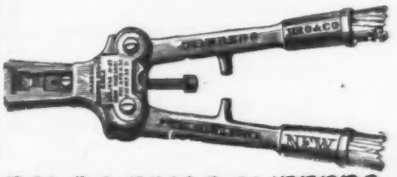

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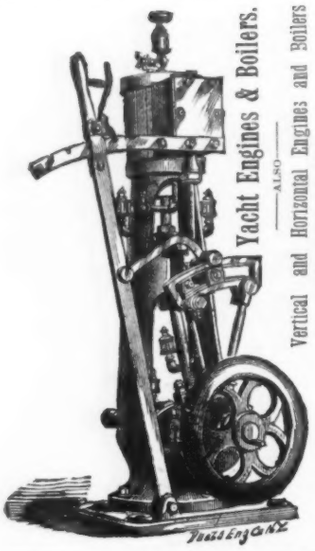

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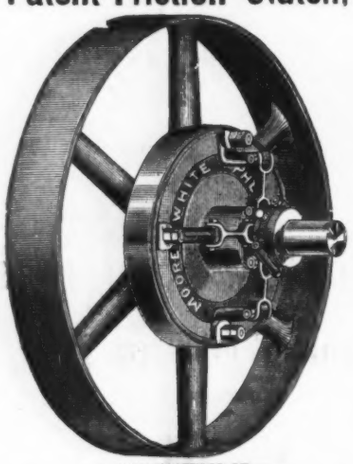

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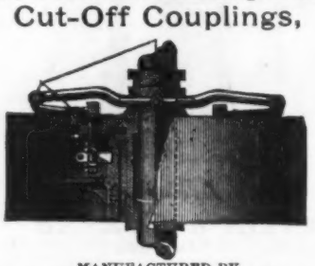

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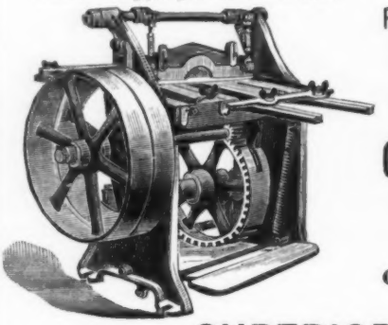

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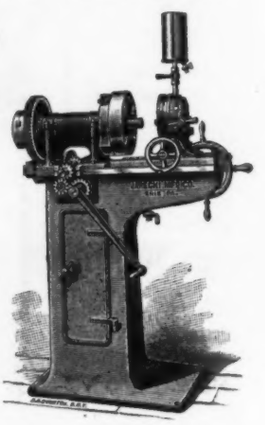

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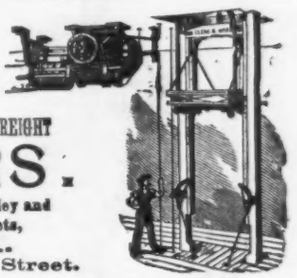

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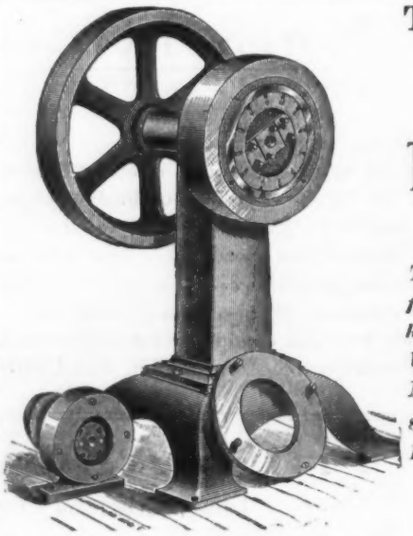
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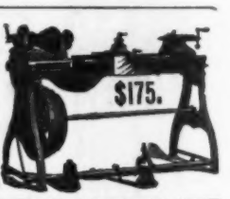

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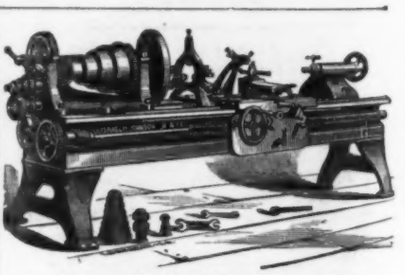
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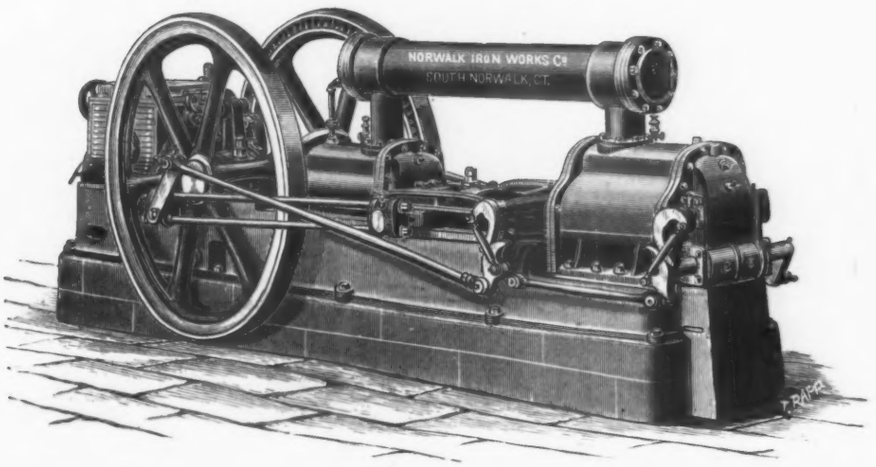

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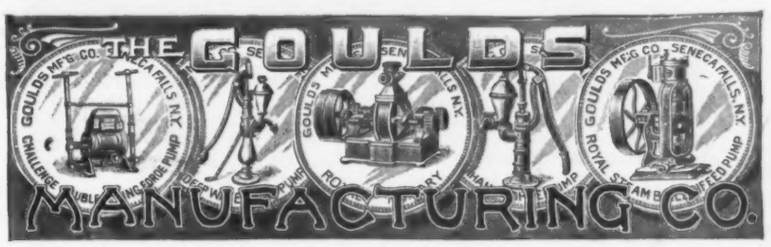

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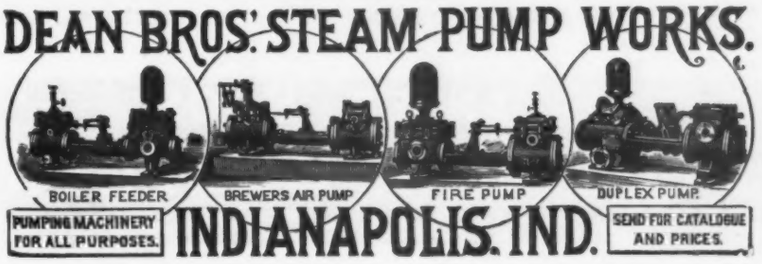

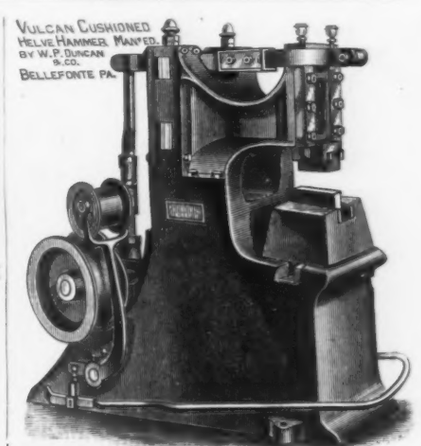

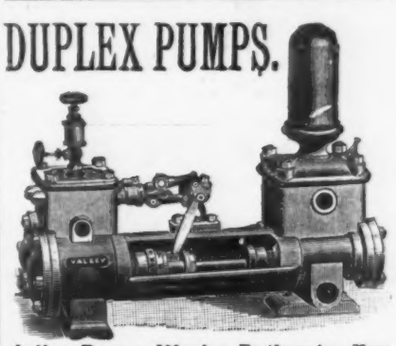

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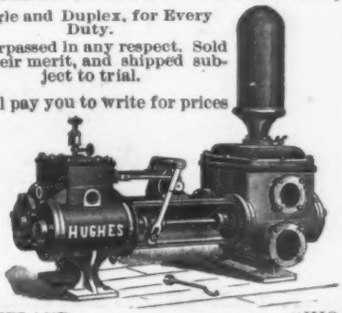

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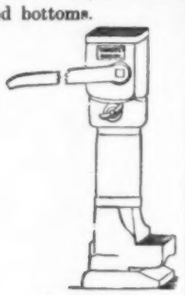

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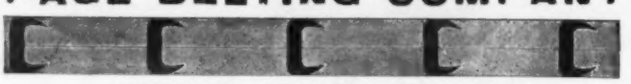

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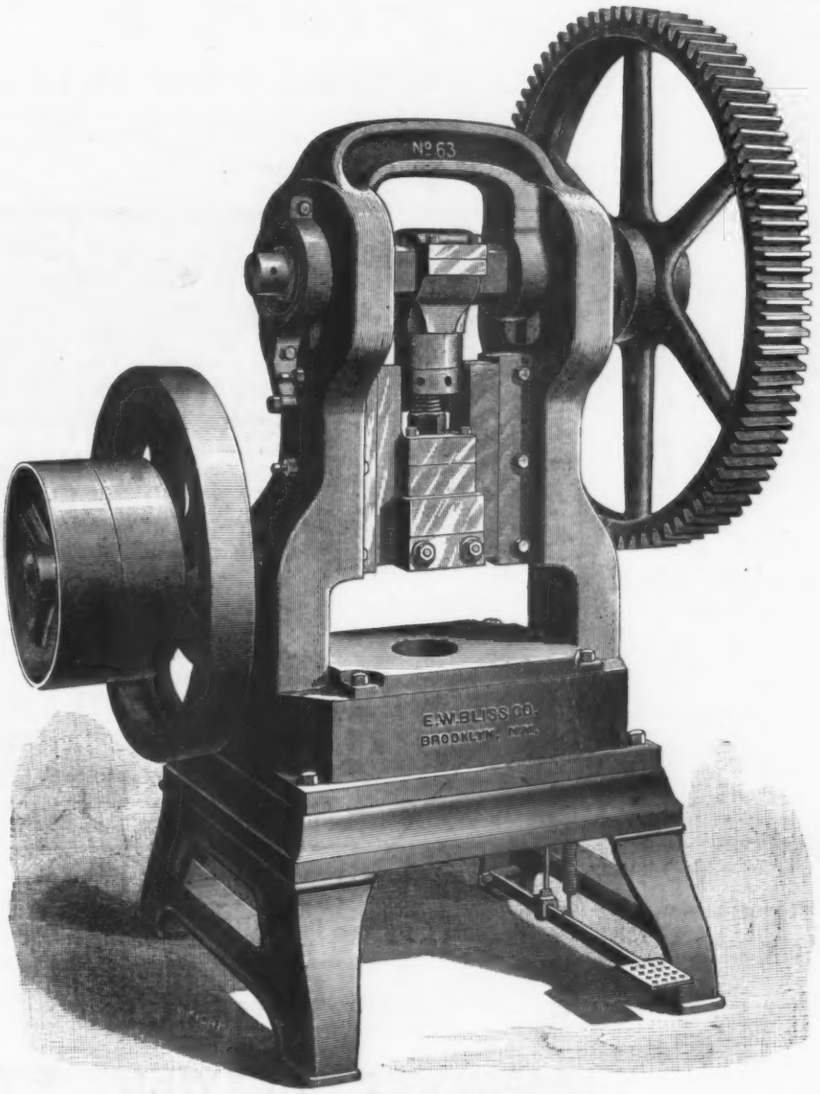

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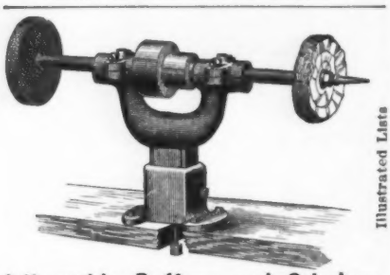

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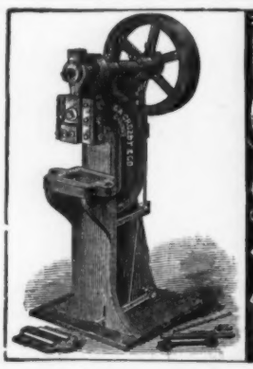

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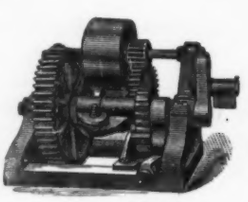

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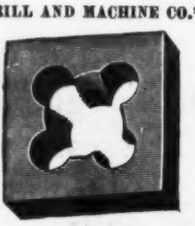

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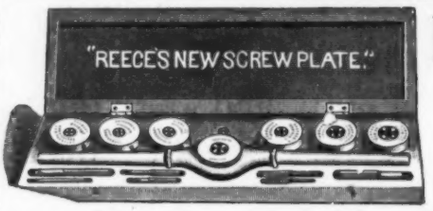

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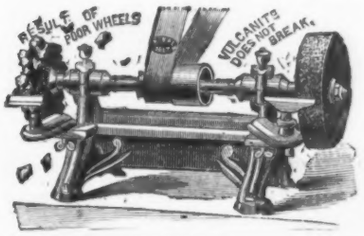

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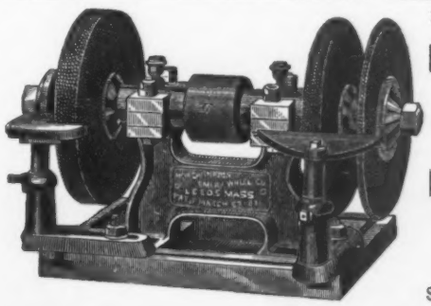

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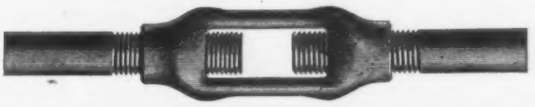
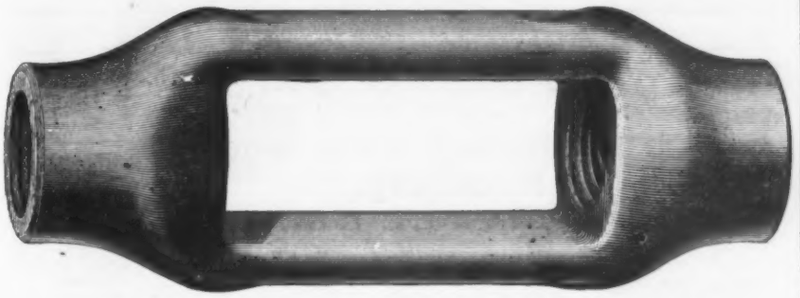
BEST.  CHEAPEST



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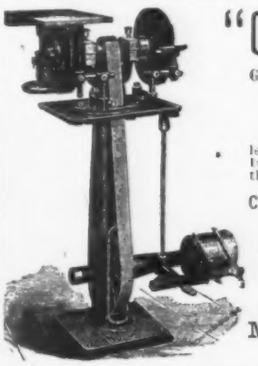

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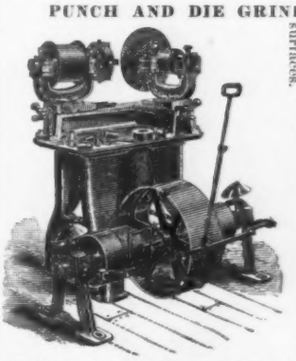

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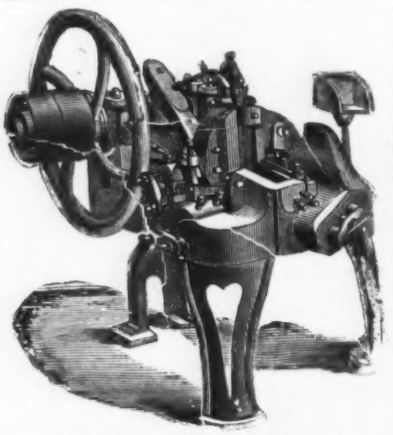

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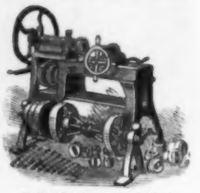
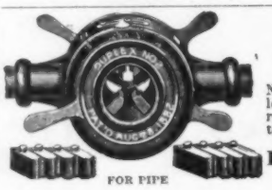


Bolt Cutters and Nut Tappers.

JOURNAL OF THE IRON AND STEEL INSTITUTE, No. 2, 1887. Synopsis of Contents: The Metallurgical and Mechanical Exhibits at the Manchester Royal Jubilee Exhibition, by Thomas Ashbury. The reduction of Ores of Iron in the Blast Furnace, by Sir Lowthian Bell. Notes on the Basic Open-Hearth Process, by J. W. Wailes. Electric Lighting in Works and Factories, by Prof. J. A. Fleming. Appendix: Notes on the Progress of the Home and Foreign Iron and Steel Industries. Statistics. Comparative Tables. Bibliography. $6.00. Sent, postpaid, on receipt of price, by DAVID WILLIAMS, Publisher and Bookseller, 66-68 Duane St., New York.



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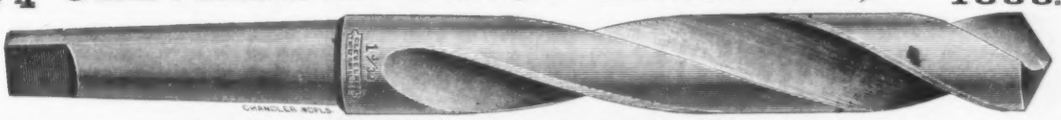

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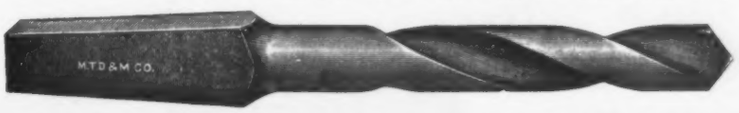

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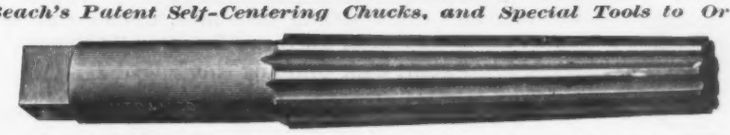

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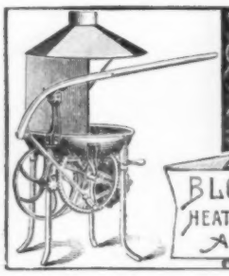

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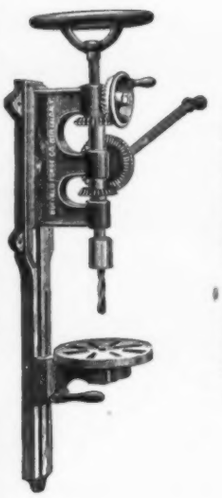

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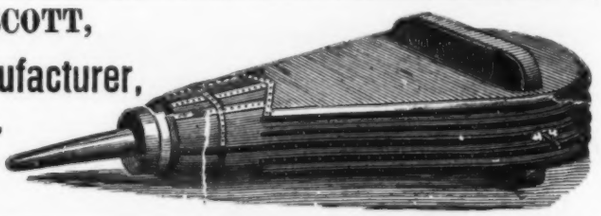

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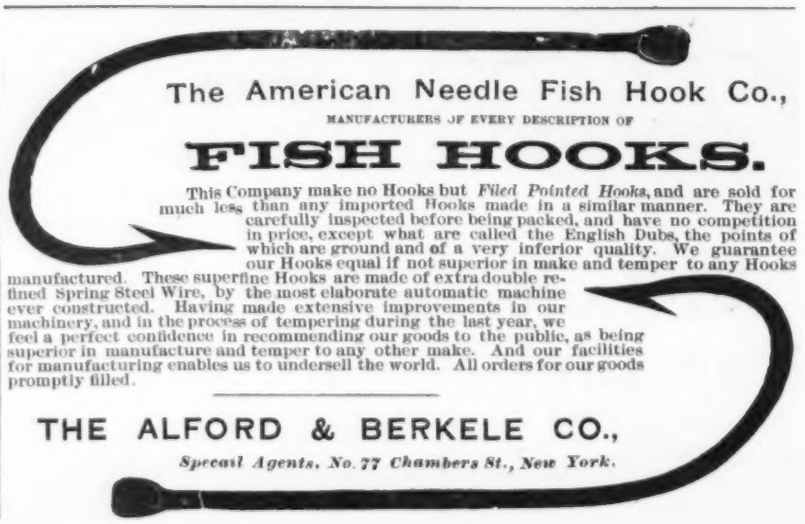

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The Newark Machine Tool Works,
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One Second-hand Twiss Automatic Engine, 10x20; also new Automatic Engines, from 20 to 100 h.-p., and Vertical Engines, 4, 6 and 8 h.-p.
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At less than half first cost, a Delamater Duplex 16 in. x 36 in. Compressor, in thoroughly good working order. Address
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THE HENDEY

Geared Friction Planer.

16 inch x 16 inch x 4 feet.

For die work and use in tool rooms this planer is particularly adapted. It will plane accurately to a line and stroke can be quickly changed from one inch to full capacity of table (4 feet), maintaining at the same time a uniform cutting speed. It has a cone pulley for change of speed and automatic horizontal, vertical and angular feed. For above work it has proved a superior tool. For Planers, Shapers or Engine Lathes, address

THE HENDEY MACHINE CO.

Torrington, Conn.

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VERTICAL ENGINES,

One 32 in. by 32 in.
One 15 in. by 11½ in.
Cylinder Boilers.
Steam Pumps.

For further particulars apply to

DAN'L W. RICHARDS & CO.,
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MACHINISTS' TOOLS.

1 Planer, planes 42 ft. long, 48 x 38, double heads on
1 Planer, planes 12 ft. 36 in. x 34 in. [cross head
1 7-ft. 28 x 28 Planer.
1 Planer, planes 3 ft. long, 19 in. x 16 in.
1 18-ft. bed, 50 in., Engine Lathe.
2 8-ft. 18 in., Engine Lathe.
2 Monitor Head Lathes.
1 9-ft. bed, 16 in., Engine Lathe.
1 Horizontal Boring Mill, 48 in. swing.
1 No. 1 Pratt & W. Screw Machine, Wire Feed.
1 2-spindle Pratt & Whitney Drill.
1 6-spindle Pratt & Whitney Drill.
1 2-spindle Edging Machine.
1 6-in. Crank Shaper, A1 order.
Send for List of Second-hand Tools.

New York Machinery Depot,

Bridge Store No. 10, on Frankfort st., New York.

W. P. DAVIS
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HAS FOR SALE

50 Key Seating Machines.
50 Standard 20-in. Drills.
1 Engine Lathe, each 18 in., 20 in, and 22 in.
1 Shaper, each 15 in, 20 in and 24 in.
1 38 and 1 50 H. P. Automatic Engine.
1 each 10, 15 20, 25, 30, 40, and 50 H. P. Boilers.
All the above are new and first-class.
The following second-hand Engine and Boilers:
1 each, 25, 35, 60 and 8 H. P. Horizontal Boilers and
1 35 H. P. Engine. All the above in No. 1 order.

ENGINES.

14 in. x 48 in. Corliss Beam.
26 in. x 6 ft. "
18 in. x 48 in. Greene Horizontal.
One pair Corliss Horizontal 30 in. x 6 ft., first-class, now running.
New Engines, from 2 H.-P., Vertical or Horizontal.

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Blowing Engine, new and first-class; Steam Cylinder 36 in. diam.; Blowing Cylinder 84 in. diam.; Stroke 48 in.; Weight 71 tons. Can ship in ten days' notice.

CLEVELAND SHIP BUILDING CO.,
Successors to Cuyahoga Steam Furnace Co.,
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FOR SALE,
CHEAP.

1 Pair 20 in. x 48 in Corliss Automatic Engines.
1 12 x 42 Green Automatic Engine.
1 12 x 24 in. Horizontal Engine.
1 8 in. x 15 in. " New.
1 5 in. x 10 " Horizontal Engine.
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1 15 H.-P. High Speed N. Y. Safety Engine.
1 6 H.-P. Baxter Engine and Boiler.
1 4 H.-P. Portable Engine and Boiler.
1 6 Horse-Power Upright Engine.
1 10 Horse Upright Engine.
1 5 x 12 Double-Drum Hoisting Engine and Boiler.
2 5 ft. x 16 ft. Horizontal Tubular Boiler.
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1 40 H.-P. Locomotive Boiler.
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1 15 Horse Upright Boiler. Nearly new.
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1 14-in Stroke, Hewes and Phillips Shaper.
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1 12 in. Heavy Slotting Machine.
1 4 in. Morris & Tasker Pipe Threading Machine.
1 set Rubber Grinding Rolls.
6 Tanks, 8 ft. x 5 ft. x 5 ft. 3 in.
Nos. 3, 4, 5 and 6 Woodward Steam Pumps.
4 4 ft. Burr Mills, Complete.
1 Bogardus Mill.
12 Contractors' Side-Dumping Cars.
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FOR SALE.

ONE OF GEORGE H. CORLISS'S UPRIGHT ROLLING MILL ENGINES;

Cylinder, 32 in. x 60 in.; Shaft, 17 in. Diameter, with fly wheel of 25 tons weight and 20-foot diameter fitted to the shaft; *also* 1 Berriman Heater, 4 feet diameter, 12 feet high, with steam and exhaust pipe and fittings for same; *also* 2 Sturtevant Steel Pressure Blowers, 6 ft. diameter; Outlet, 20 x 24, with 14 in. pulley on each side for 12-in. belt. Address

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ONE SCREW PLANER.—14-foot Bed; will take in 4 feet between uprights.

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SHICKLE, HARRISON & HOWARD IRON CO.
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ENGINES AND BOILERS.

One 20 x 48 Horizontal Corliss Engine.
" 18 x 48 " " "
" 16 x 32 " Wright "
" 14 x 42 " Wheelock Engine.
Two Horizontal Tubular Boilers, 80 H.-P. Inspected by Insurance Co.
One No. 6 Knowles Steam Pump.

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MACHINERY SALE.

38 in. x 36 in. x 12 ft. Pond Planer in good order, $800
30 in. x 24 in. x 6 ft Planer, with new gears and screws 250
26 in. x 24 in. x 5½ ft. New Haven Planer, in fine order 400
18 in x 10 ft. Engine Lathe, with 9 in. chuck..... 185
14 in. x 6 ft. Engine Lathe, newly repaired..... 150
26 in. New Haven R. G. Drill, good order..... 160
4 x 6 Horizontal Engine, nearly new..... 125
8 x 12 Horizontal Engine, good order..... 150
10 x 15 Horizontal Engine, good order..... 175
Large stock of new Tools, Engine Boiler, &c. Send for stock list. S. M. YORK, Cleveland, Ohio.

ROLLING AND NAIL MILL MACHINERY FOR SALE.

Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).
One 16-in. Nail Plate Train of three stands of rolls, with pinions, tools and fixtures complete.
One 18-in Muck or Forge Train, two stands of rolls.
One 500-Horse-Power Corliss Beam Engine, with condenser, pumps and other connections.
70 Nail Machines.
3 Spike "
3 Guillotine or Plate Shears.
15 Grindstones, fixtures and countershafts.
43 Gould's Patent Nail Feeders.
About 600 ft. Shafting with pulleys; also Lathes, Planers, Drills and all necessary tools to do repairs.
All in perfect running order and will be sold cheap, as a whole or in parts. Above now located at Weymouth Iron Works, East Weymouth, Mass.
Enquire of

J. F. ROGERS, 101 Milk St., Boston, Mass.
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FOR SALE. A Brown (Fitchburg, Mass.) Engine 20 in. x 48 in., Corliss 18 in. x 42 in.

FRANK McSWEGAN & SONS,
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Rolling Mill Machinery
For Sale.

SHEARS, ENGINES, BOILERS, FLOOR PLATES, &c.

One Heavy Plate Shear, 48-inch throat.
" Large Lever Shear. Cutting old rails.
" Small " " " scrap iron.
" Rotary " " " strips 5-16 in.
" Large Upright " " tops and bot'ms 1 in
" Small " " " ¾ in
" Upright High-Pressure Engine, 16 x 18 in.
Two Winslow Squeezers. One new.
One Dudgeon Steam Hammer, 18 in. diam., 40 in. stroke.
Upright Tubular Boilers, 15 ft. long, 60 in. diam.
Cylinder Boilers, 20-24 ft. long, 30 in. diam.
Stacks, 30 to 50 ft. long, 30 in. diam.
One Crane (Iron) about 5 tons.
One Crane about 5 tons capacity.
Boshes, Steam Piping (cast and wrought iron).
Blast Pipe, Cinder Buggies, Tanks, &c.
Beam Engine, 14 x 30 in.
The above are in good order, and for sale in lots to suit for immediate delivery.

THOMPSON C. GILL & CO.,
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DROPS AND LIFTERS

bought, sold, or taken in exchange for new.

BEECHER & PECK,
New Haven, Conn.

ROLL TURNING LATHES BLOWER AND ENGINE.

One Single Roll Turning Lathe, 18 in. Roll
" Upright Engine, 6½ in. x 17 in.
" Root Blower. No. 7.
All in good order.

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GOOD SECOND HAND TOOLS.

I want to buy for cash good second-hand

LATHES, PLANERS AND DRILLS.

Address "A. B. S.,"

Office of *The Iron Age*, 66-68 Duane Street, N. Y.

FOR SALE, CHEAP, Wire Machines.—6 second-hand Wire Nail Machines, 2 Rattlers or Polishers, 1 Emery Wheel, stand and wheels complete; 1 Engine Lathe, nearly new, for making dyes, and in first-class condition. Have been run about eight months, and of the latest pattern. The machines will cut from ⅛ in. to 3½ in. nail. Very strong and durable machines, and of latest improved style. For particulars please refer to me. All in running order. GEO. A. CARTER, Box 434, Brockton, Mass.

FOR SALE AT LOW PRICES.—1 each, 12 and 16-in. Turret Lathe, Warner & Swazey, good order. 1 12-inch Automatic Turret Lathe, Freck, new, $150. 1 2-Spindle Drill Press with Adjustable Spindles, $50. 1 No. 2 Garvan Hand Feed Miller, good order, $75. 1 Power Punch, punches ½ x ⅝, new, $175. 2 Large Screw Punches, good order and cheap. 1 3-Spindle Horizontal Nut Tapper, good order, $75. 1 36-inch Car Wheel Borer, good order, $250. 1 36-inch Pulley Turning Lathe. 1 Seymour Pulley Balancing Machine. A large assortment of Lathes, Planers, Shapers, etc. New and second-hand. Send for catalogue.
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FOR SALE—IMMEDIATE DELIVERY.

One new Star Tool Co.'s Cutting-off Machine, capable of cutting 5-in stock.
Two new Star Tool Co.'s Traverse Drills.
Twenty new modern Lathe and Planer Chucks, popular makes, all sizes, at large discounts from manufacturers prices.

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MR. HARDWARE

dealer and traveling man, take due notice that I give 20 per cent. from my regular established prices on Boilers and Engines. Write for Catalogue. Also the largest stock of Drive Well Points and Tools and Pumps in the country.

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Bordentown, N

COIL-BOILERS FOR THE UNITED STATES NAVY.—NAVY DEPARTMENT, Washington, D. C., August 2, 1888.—The Navy Department, having in view the possible decrease in weight of machinery in vessels of war by the use of tubulous, sectional or coil-boilers, has determined to adopt such boilers, if suitable can be found, for a portion of the steam-power of one or more of the vessels about to be built. To this end manufacturers who wish to offer such boilers for use by the Department are hereby invited to furnish plans of the same, adapted to an armored coast-defence vessel, on or before September 15, 1888. Plans must be accompanied by certificates that boilers of the same make are or have been in successful use at sea or on shore. Plans showing the space in the vessel available for boilers, particulars of the duty required and other information, may be obtained upon application to the Bureau of Steam Engineering. The boiler which appears to the Department, after investigation, to be the best for the purpose, taking into account the evaporative efficiency, the dryness of the steam, the weight of the boiler, the weight of the water contained, the accessibility for repairs, the ease of making repairs, the simplicity and interchangeability of the parts, the space occupied, the ease of firing and of regulating the feed, the suitability for working in battery, the capability of long-continued steaming without cleaning, and the durability, will be adopted in the coast-defense vessel above mentioned, provided that the price, which must be stated when the plans are submitted, is satisfactory to the Navy Department. Such boilers as appear to possess merit will be tested by the Navy Department, if the manufacturers so desire, to determine which is the more suitable for the purpose. Manufacturers who wish their boilers to be tested must furnish a boiler of the type of one of those proposed for the vessel and prepare it for test, either at their own works or at such place as may be arranged with the Department. The expense of the test of the accepted boiler will be borne by the Navy Department, and the cost of the fuel used in the test of the second best will also be borne by the Navy Department. All other tests must be at the expense of the parties offering boilers for competition.

WILLIAM C. WHITNEY,
Secretary of the Navy.

FOR SALE —Two 80 horse-power Locomotive Boilers, first-class condition, good for 75 lbs. econd-hand Iron Tanks, all sizes. Wrought and Cast Scrap, Red and Yellow Scrap, Brass, &c.

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FACTORY LOCATIONS.

Correspondence invited from manufacturers seeking new locations, or from parties wishing to engage in manufacturing enterprises.

Full information given regarding the many advantages offered by our city as a manufacturing centre, among them being 16 lines of railroads; coal at 50 cents per ton, &c., &c,

Address,
J. E. CLAREY,
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The Commercial Exchange,
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Do You "Catch On?"

Having one of the largest and most complete plants for the manufacture of AUGERS and AUGER BITS, we wish to arrange with some enterprising party for the extensive manufacture of these goods. Factory and machinery thoroughly equipped in all parts and ready for immediate resumption of the works. Several valuable Patented Specialties in the line in hand, which will insure the success and profit of the business. To the right man a rare and profitable investment is here offered. Should such be preferred, would sell the entire machinery, with or without the factory, at a great bargain.

GEO. F. STEARNS,
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FOR RENT.

VALLEY FORGE MILL AND WATER-POWER

With new Dam and Flood Gates,

Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.

For particulars, address
J. B. CARTER, Hardware Manfg. Agent,
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FOR SALE.—The Northwestern Foundry. Largest and best in Minneapolis. Located on half of block 106 (330 x 165 ft.) and part of block 105, corners Third street, Ninth and Tenth aves., South. Main building (200 x 60 ft.) is brick with slate roof, contains four Cranes, three Cupolas, &c., complete set of Car-wheel and various patterns for Stoves, Machinery, Architectural, Ornamental, Bridge and Railroad Castings. Office also of brick, 40 x 20 feet; fireproof vault and burglar safe in same. Will sell the entire plant, including the valuable Real Estate, Railroad Tracks, Track and Wagon Scales, &c All the above in first-class order.

Address
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FOR SALE.—A first-class Boiler and Sheet Iron Business in a thriving Western city of 100,000 inhabitants. Shop has been in operation eight years and has a growing and profitable business which can be largely increased. Good buildings, power tools, and first-class location on R. R. track. Good reason for selling. Correspondence and investigation from parties meaning business solicited. Address

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Valuable Manufacturing Property FOR SALE.

The real estate and buildings now occupied by the Watertown Steam Engine Co., of Watertown, N. Y., will be offered for sale. The property covers about four acres; has an unfailing water power on the Black River estimated at 225 h.-p. Consists of machine shop, foundry, boiler shop, blacksmith shop, store houses and tenements. The buildings are equipped with line shafting, and could be adapted to a large variety of manufacturing purposes. Moderate cost of labor, combined with low freight rates and nearness to raw material, with an abundant water power, make Watertown an exceptionally good point for manufacturing. It is essentially a manufacturing town.

The property can be divided and sold in parcels if desired.

Address WATERTOWN STEAM ENGINE CO., Watertown, N. Y.

FOR RENT!!! "Water Power," "Water Power."—The nearest available water power to New York City at Boonton, New Jersey. Constant all the year around! This magnificent water power will be leased in small or large quantities to suit the tenant. Suitable buildings erected for all kinds of manufacturing purposes. Splendid shipping facilities! On the line of railroad and canal. Only 50 minutes from New York City by train. This power will be leased at a great reduction on steam. Address LORD ESTATE, 68 Wall Street

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FOR SALE.

75 Tons Stove Plate.
100 Tons Machinery Iron.
Also Old Iron and Metals of all kinds.

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STEEL PLATE.

For Sale, a lot of Steel Plate 5-16 in. to ½ in. thick up to 108 in. wide; will shear in size and shapes to suit.

THOMPSON C. GILL & CO.,
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A RARE OPPORTUNITY.

CLAPP-GRIFFITH STEEL PLANT FOR SALE.

Consisting of one 3-ton converter, complete, with bottoms, hydraulic cranes, ladles, pumps, cupola crusher and pan, drying ovens, castings, accumulator, hydraulic valves, piping, etc., ready for erecting.

Also, one 2-high 20-inch muck train, with engine, 26 in. x 72 in., fly wheel, shaft and three extra sets of rolls. Will roll 2½ in., 3 in., 4 in. and 6 in.; in excellent condition.

All of the above can be purchased very low. For full particulars address

SCOTT & McLEAN,
Room 46, Lewis Block,
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A young business man, with thirteen years of experience, having passed through every department to a partnership in a well-known firm engaged in the metal trade, is open to form a new connection, and solicits correspondence with manufacturers or others desiring to establish a branch house or agency in New York.

Address "CRESCENT,"
P. O. Box 3249, New York.

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

FOSDICK & PLUCKER,
SIXTH and CULVERT STS., CINCINNATI, OHIO.

Wanted to Buy,

A Good Second-hand or New 60 in. x 60 in. PLANER, to plane from 15 to 30 feet. If Second-hand, must be of modern design and in first-class order.

FOSDICK & PLUCKER,
Sixth & Culvert, Cincinnati, Ohio.

A GOOD HARDWARE BUSINESS FOR SALE.

Wishing to retire from all active business, the undersigned offer for sale their valuable and thoroughly established business. The stock is clean and well selected. Waverly, New York, is a growing place, with considerable manufacturing, and surrounded by a good farming country; has good water, gas works and sewers, also five railroads radiating from it. The location of the store building is central, with every convenience, including hydraulic elevator, &c. The business has been conducted successfully as wholesale and retail; can be continued as we have conducted it, or else we can soon reduce the stock, and it can be conducted as a retail alone.

In negotiating sale, reference given and required.

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AN UNUSUAL OFFER.

An old established Hardware Business doing the leading wholesale and retail trade in one of the best towns in Minnesota. This is an opportunity seldom offered. Reason for sale, death of proprietor. Address

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FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock, Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85 two stories. Warehouse, 22 x 30, two stories in rear. Does a large and paying business, which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade.

Address
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FOR SALE—40-horse Tubular Boiler and Engine, second hand, in good running order, Apply

STANDARD STEEL CASTING CO.,
Thurlow, Pa.

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TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia please address

J. B. CARTER,
Hardware Manufacturers' Agent,
504 Commerce Street, Philadelphia, Pa.

FOR SALE.

Clean stock of Hardware; will invoice about $7000; in the best city in Central Nebraska; population, 15,000; terms, one-half down, balance to suit purchaser. This is one of the finest arranged stores in the State, and is so neatly constructed its attraction will draw trade. Correspondence solicited. Address

P. S. BURGER,
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FOR SALE.—A COMPLETE RETAIL STOCK OF BUILDERS' HARDWARE AND TOOLS. Store located in a flourishing city of 150,000 inhabitants in the Northwest. Has the largest and best trade in the city; business last year $90,000. Stock will inventory from $30,000 to $35,000. Good reasons given for selling. Address

"MINNESOTA,"
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TO LET.

Office and Sample Room.
One half of Basement. All of Subcellar.
HUMASON & BECKLEY MFG. CO.,
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Wholesale Auctioneers.

Large Special and Peremptory Trade Sale of

HARDWARE, HOUSE URNISHING GOODS, EDGE TOOLS, &c.,

On Wednesday and Thursday, August 29th and 30th, at 10 a. m.,

At Nos. 12 Murray St. and 15 Park Place, New York.

This sale will comprise large invoices direct from the manufacturers, and will include Cast-Steel Axes, Hammers, Hatchets, Straps and T Hinges, Augers, Auger Bits, Steel Squares, Casters, Bolts, Saws, Locks, Chisels, Drawing Knives, Files, Horse Rasps, &c., &c.

Also about 300 Scale Beams, with weights, 100 lbs. to 800 lbs.; cases of Cast-Steel Taps and Drills; cases Bit Braces.

Also, for account of whom it may concern, to close the business,

Peremptory Sale of about 250 Cases Philadelphia Screw Co.'s

First Quality Flat Head Iron and Brass Screws,

comprising a full assortment of sizes. These goods will be sold by the case only. Manufacturers who desire to make consignments to this sale must forward their invoices by the 18th inst.

Catalogues will be mailed (when ready) to those who apply for them.

The entire sale will be sold without reserve, and will be worthy the attention of the trade.

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DIXON'S—MR. JOS. R. HICE, Salem, Columbiana County, Ohio, ran his puddling wagon for seven years, on an average of 3 pounds of Dixon's Everlasting Graphite Grease per year. Estimated distance run, 44,660 miles. On having a new wagon built, the maker advised him to use the old axles—the spindles were so true and in such fine condition.

JOS. DIXON CRUCIBLE CO.,

JERSEY CITY, N. J.

4 dozen Plated Mortise Knobs, 2¼ inches, at $6.00 per dozen.

250 gross Fancy Wood Shutter Knobs, 1½ inches, at 50 cents per gross.

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LARGE SIZE, 500 Pages, 6 x 9½ in. each, $8.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.

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Agents and Traveling Men to sell the most complete stock of Boilers and Engines, Drive Well Points and Tools and Pumps in America.

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FOR SALE—CUPOLAS AND TOOLS.

One Foundry Cupola, shell 28 in. diam., melting capacity one or two tons per hour. Price $50.
One Cupola, shell 46 in. diam, melting capacity three to four tons per hour. Price $100.
One D. W. Pond Heavy 42 in. x 24 ft. A1 Lathe, nearly new. Price $1500.
One 7 ft. Warren Universal Radial Drill, good order. Price $650.
One 13 in. Heavy Slotter, good order, Price $700.
One Steptoe 15 in. Shaper, A1 order. Price $225.
One 50 H.-P. second-hand Ide Automatic Engine, good order. Price $500.
One 80 H. P. new Ide Automatic Engine with Corliss style cross head. Price $1000.

H. A. L. Ide & Son, Springfield, Ill.

80 H.-P. Vertical Engine; first-class order.
20, 30 and 50 H.-P. Horizontal. " "
25 H.-P. Portable Engine and Boiler.
Double 6-in. Hoisting Engine and Boiler.
Single 8-in. Hoisting Engine and Boiler; first-class order.
4 H.-P. Otto Gas Engine; first-class order.
33 x 11 ft. Planer. " "
25 in. x 12 ft. Screw-Cutting Lathe; first-class order.
20 in. x 8 ft. Screw-Cutting Lathe; new.
18 in. x 8 ft. Screw-Cutting Lathe; new.
15 in x 6 ft. Screw-Cutting Lathe; new.
14 in x 6 ft. Screw-Cutting Lathe; new.
Engine Boiler, Rock Drills, Chain Elevator and Conveyers.

FRANK TOOMEY,

131 N. 3d St., - Philadelphia, Pa.

WANTED.

A second-hand Boring and Turning Mill 10 to 14 swing. State condition, name of maker, when built, and give full particulars, also name lowest price on cars.

WILLIAM A. HARRIS STEAM ENGINE CO.,

Providence, R. I.

Fire Clay for Sale or Lease.

Tract of 320 acres near Cumberland, Md. 2½ miles down grade to Pittsburgh and Connellsville and Penna. R. R's. Coal on property. Opening showing quality and quantity of Clay and Coal. For samples, information or inspection of property apply to

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Wire Box Strap Patent for Sale.

THE BEST YET OUT.

100 tons per month can readily be disposed of. No. 14 wire sells at 9c. per pound. Owner sells only on account of lack of capital to manufacture. Machine to manufacture perfected. Address

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FOR RENT.

Three-story factory, with or without power, situated in Philadelphia, 78 x 100 ft. Within one block of Penna. R. R. Depot, one block of B. and Ohio Depot, three blocks of Delaware, three blocks of European Steamers, half mile of Southern and Eastern Steamers. An excellent site for tinware or kindred business offering unexcelled advantages for shipments and cheap labor. Address "X. Y. Z.," Lock Box 1086, Philadelphia.

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Hardware Specialties to manufacture on contract. Good Patents in our line bought or controlled on Royalty. Local Agents and Canvassers wanted everywhere for our Specialties. Address all correspondence to

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Manufacturers of Hardware Specialties,

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THE BRAND MFG. CO.,

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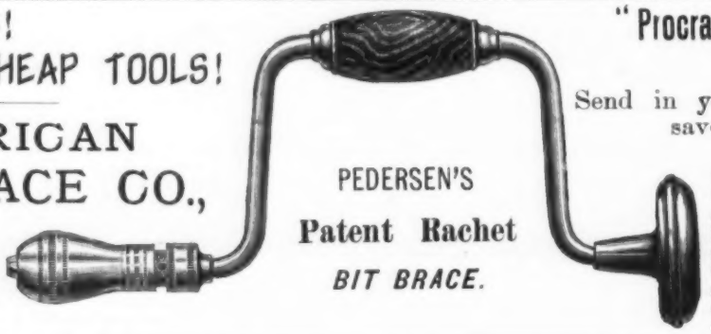

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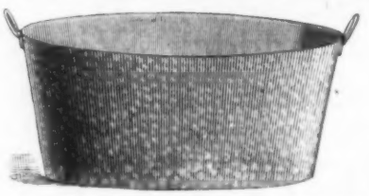

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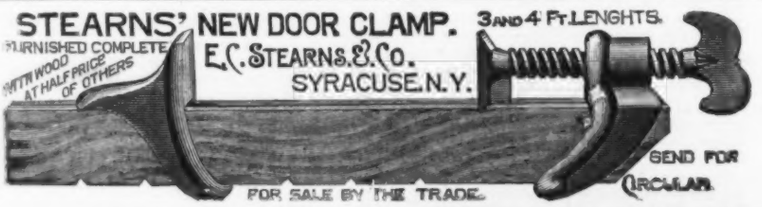

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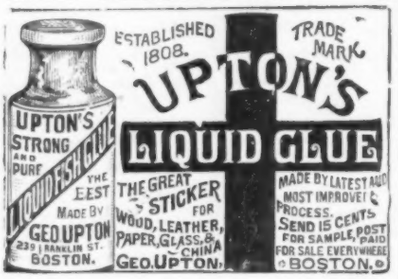

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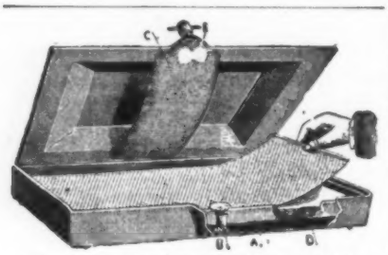

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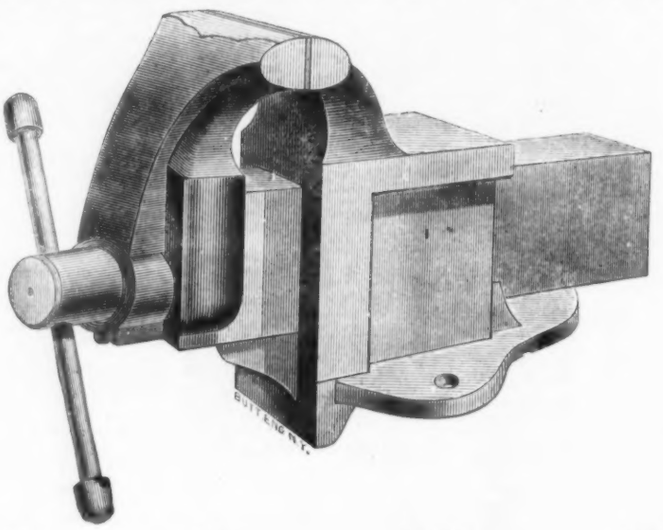

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2 inch	3½ inches	10½ pounds	$1.50
2½ "	3½ "	20½ "	2.25
3 "	4½ "	40 "	3.50
3½ "	4½ "	40½ "	3.75
4 "	5 "	52½ "	4.50
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5 "	6 "	76 "	6.50

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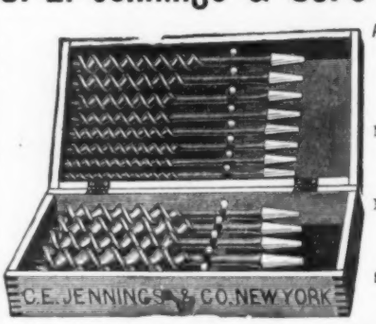

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This illustration represents our Auger Bits put up in Fancy Wood Boxes with rack to hold one Auger Bit of each size

No. 10 Set. C. E. Jennings & Co.'s Extension Lip Auger Bits: 13 Bits, 32½ Quarters, one each as follows: 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16-16ths of an inch, per set..... $5.00

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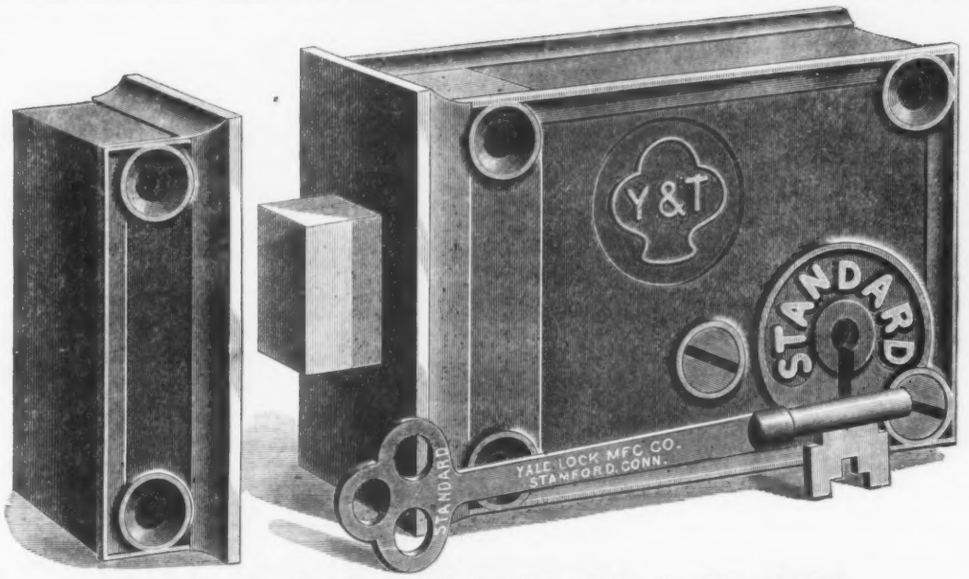
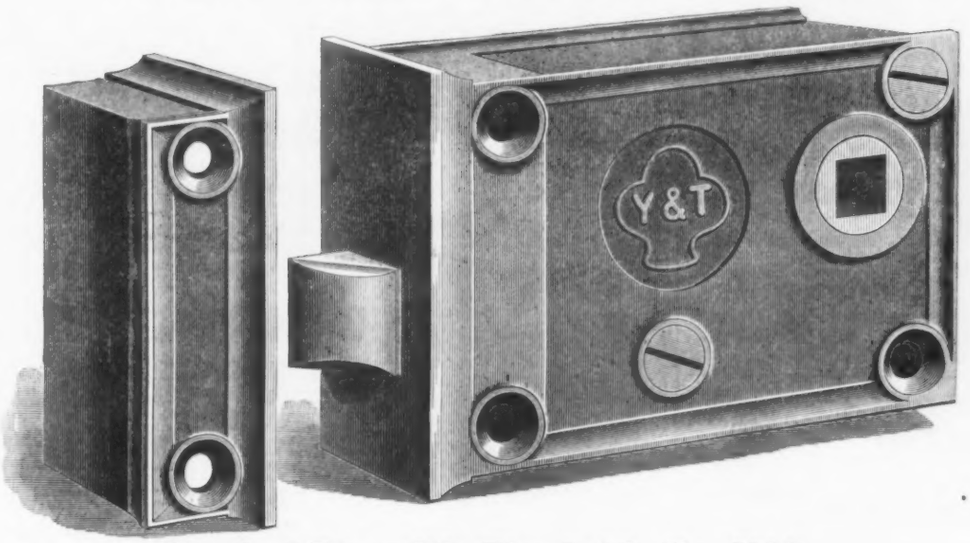


Standard Reversible Rim Dead Lock, No. 4300.



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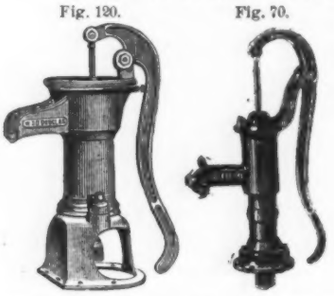
A LARGE CAPACITY, AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig. 120. Fig. 70.



or wherever it is desired to raise a large quantity of water by **hand power.**

The pump has large valves (accessible by hand) and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

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These pumps are simple, durable and low priced.

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Fig. 209. Fig. 381.

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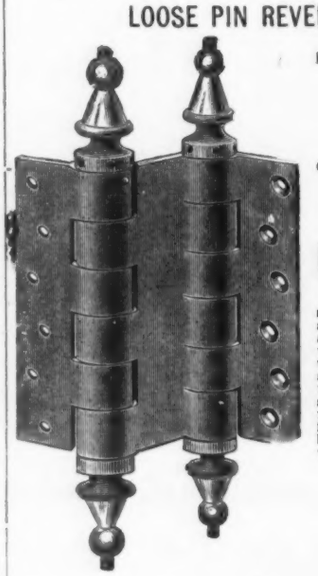

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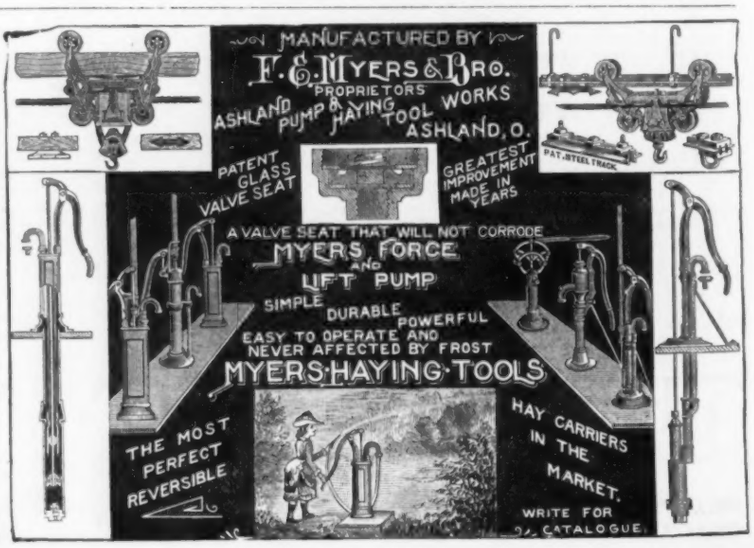

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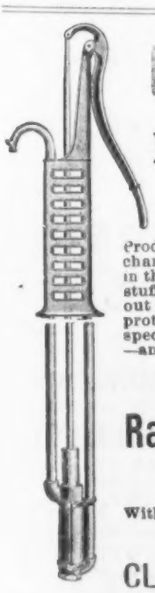

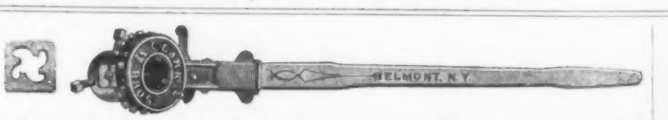

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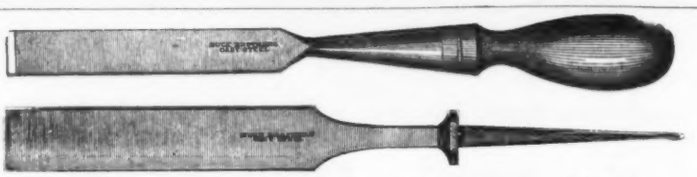

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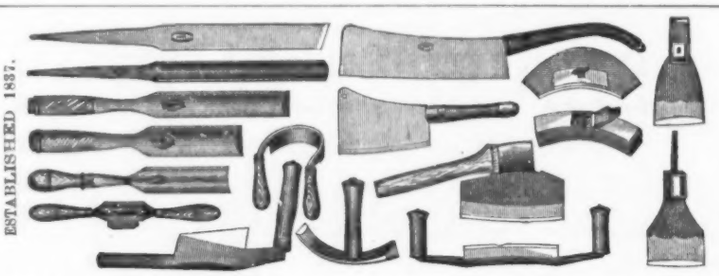

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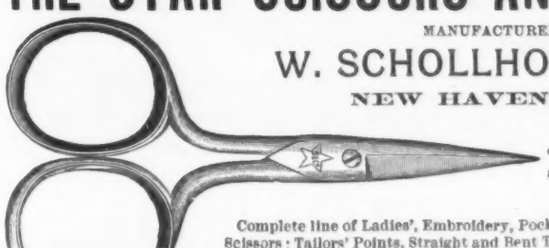

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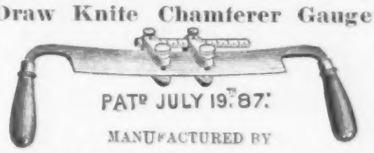

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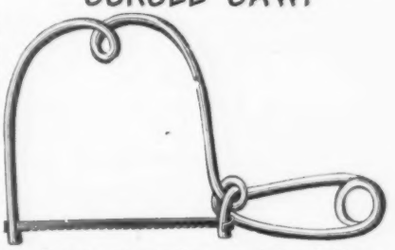

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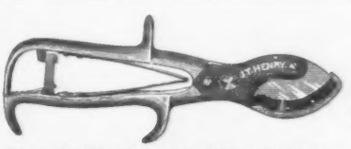

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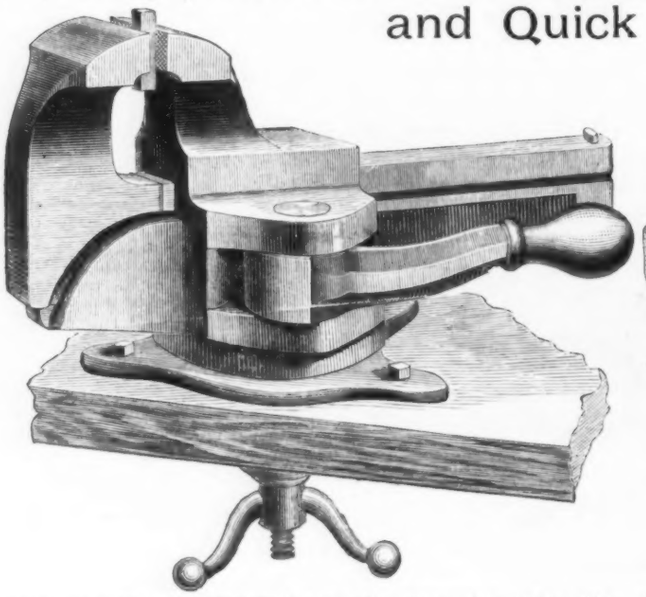

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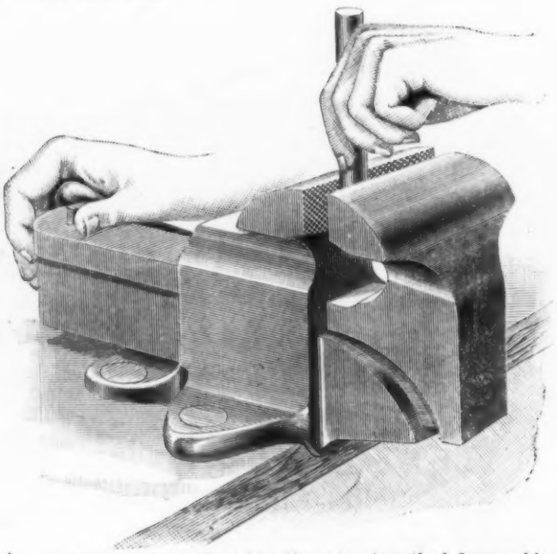

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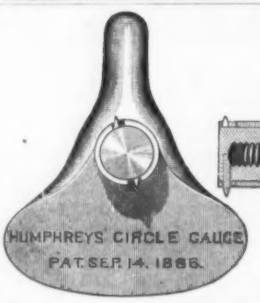

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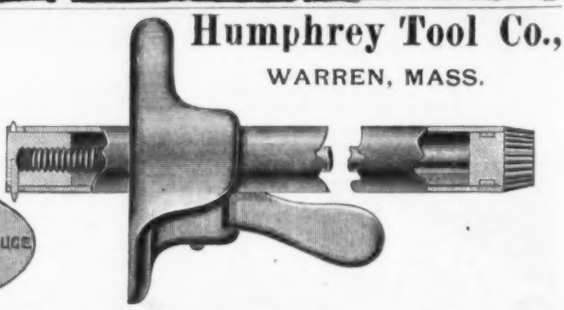

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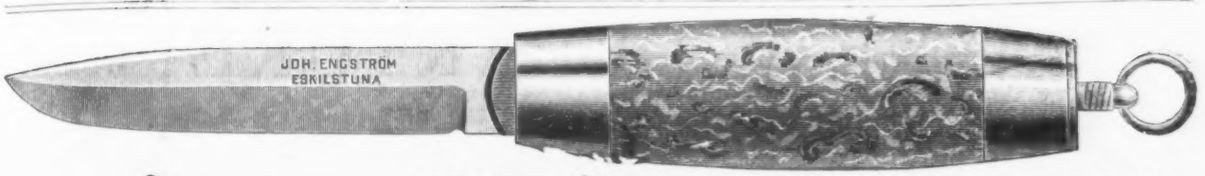

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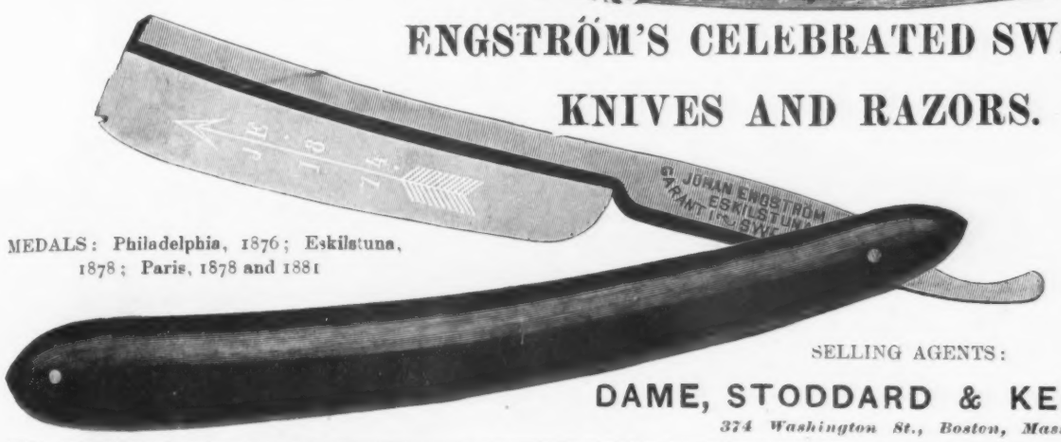

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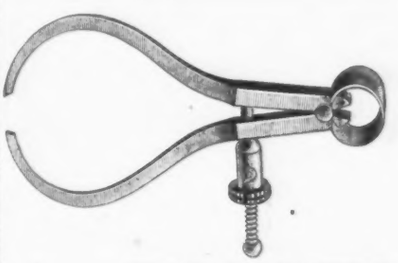

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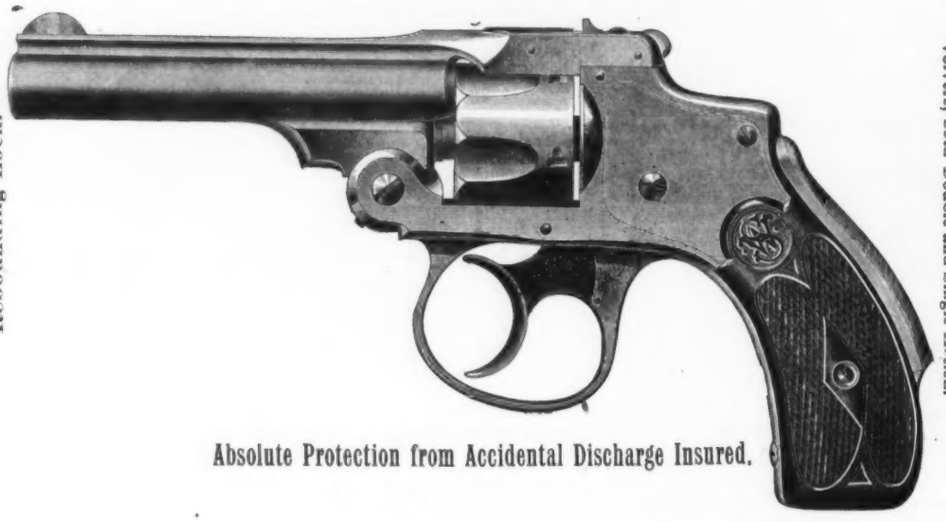

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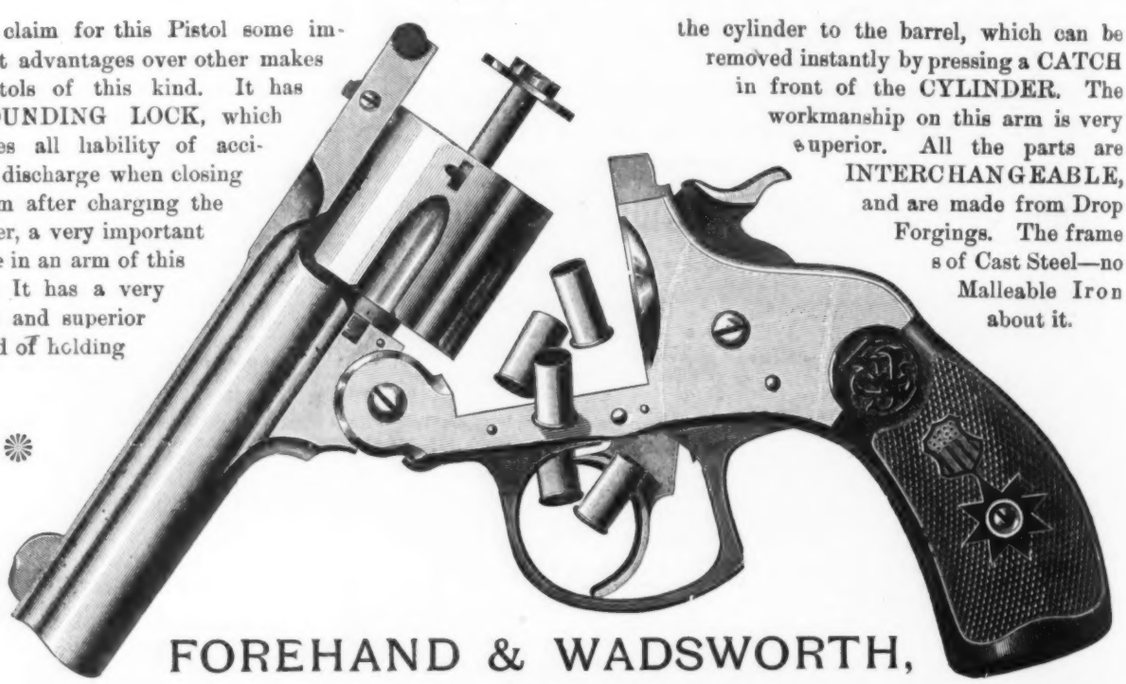

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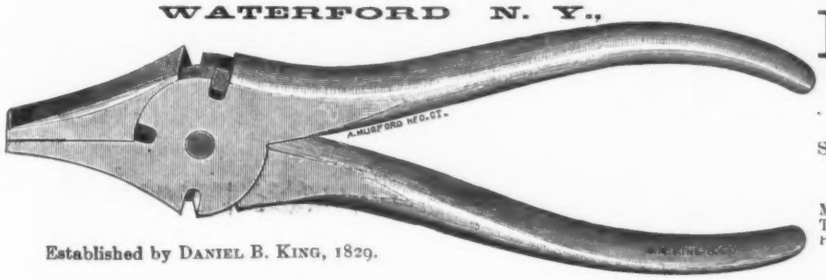

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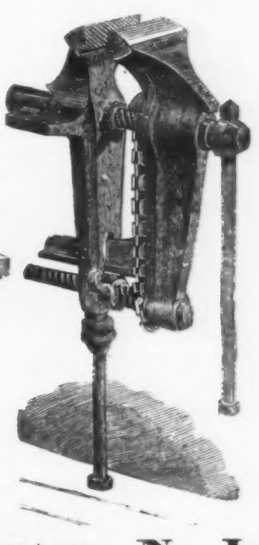

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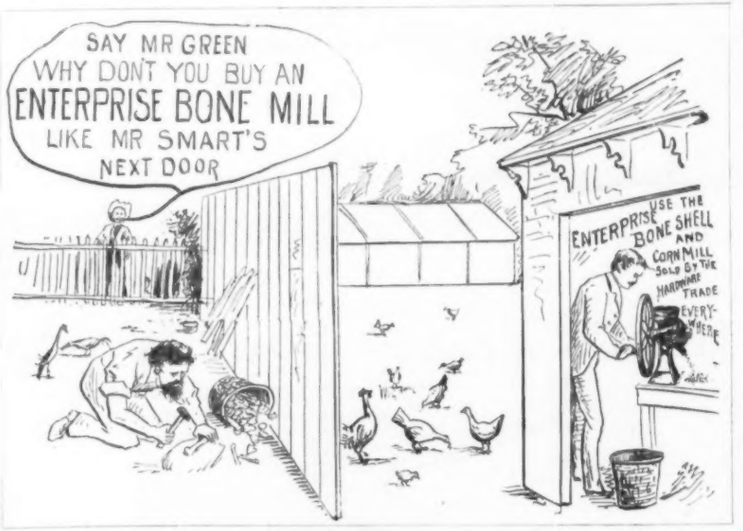

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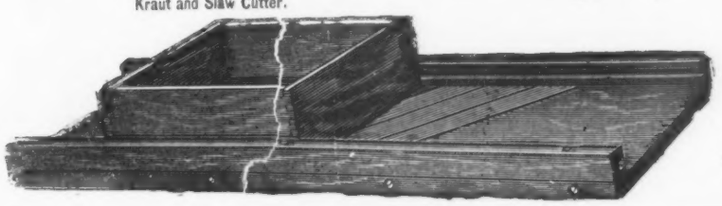

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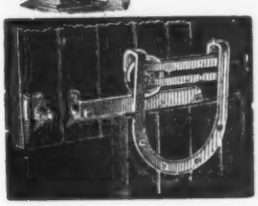

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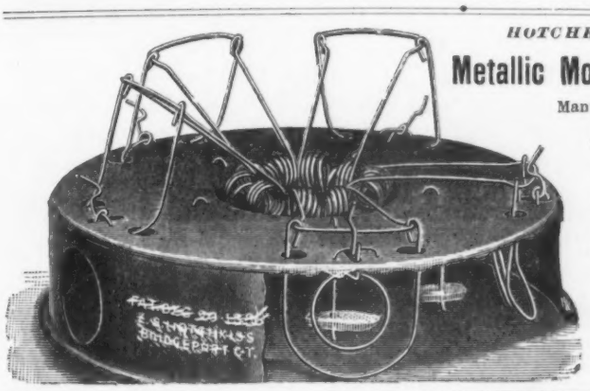

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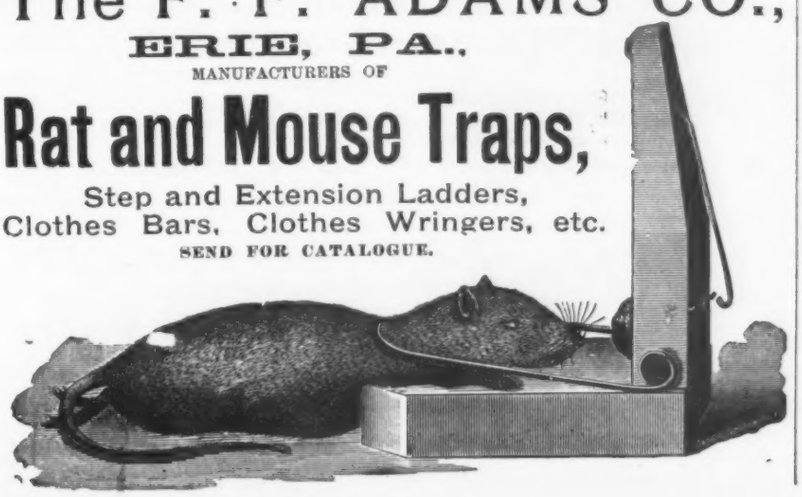

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Tuttle Tooth, Diamond and Dexter,

and the Celebrated

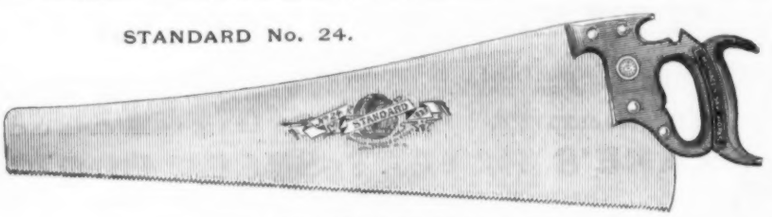
SILVER STEEL DIAMOND.

The King of Saws.

Western Agents for Tanite Emery Wheels. *Write for Catalogue and Prices.*

HOLLOW THIN BACK.

STANDARD No. 24.



Extra Temper.
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The best and cheapest Hand Saw in the market.

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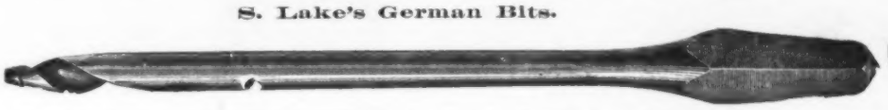

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MANUFACTURER OF THE

Best Quality Cast-Steel

AUGER and CAR BITS,

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ACME CUTTING TOOLS.

Made in all Sizes.

SOLID STEEL ACME PLIER AND WIRE CUTTER. Made with cutters of best steel.

Jaws of Choicest Tool Steel, dove-tailed into the head, making it as strong as solid steel.

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MANUFACTURER OF EVERY DESCRIPTION OF

WOODEN FAUCETS AND SPECIALTIES IN WOODEN WARE,

Storehouse and Yard: Central and Morris Aves., Dickerson and W. Monroe Sts

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The "Reliable" Cork Lined Faucets. Boiled in Pure Linseed Oil, and made out of Hard Sugar Maple.

We are the oldest and largest Faucet House in the United States, making Faucets our specialty.

This Faucet cannot be equaled in quality at the price. Packed one size in a barrel.

Average weight per Bbl., 100 lbs.					
Nos.	0	2	4	6	8
Price	$0.75	.75	1.00	1.25	1.50
Bbls. contain about	30	27	24	15	14 doz.

DISCOUNT.—LESS 70%, 5% cash 10 days.

Special prices made if ordered in large quantity. Send for our fifty-page Illustrated and Descriptive Catalogue of everything in the Wood Faucet Line.

NEW SELF-SETTING PLANE

Sample sent for trial as per our Circular if local dealers do not keep it.

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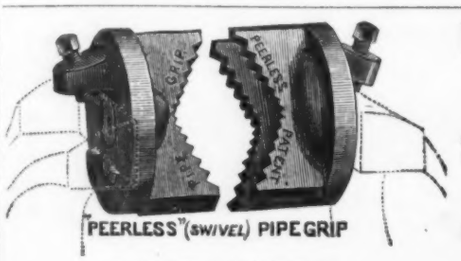

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Made of Steel, Fits any Vise,

PRICE, $2.50 and $2.75.

Instantly converts *any Vise* into a first-class *Pipe Vise*, Holding Pipes, Thimbles, Couplings, Bolts, Nut &c., in *any position.*

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M'f'rs of all kinds of Vises,

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All patents sustained by U. S. Courts.

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JAIL PADLOCKS,

The only durable low-priced Scandinavian padlock ever produced, 34 different grades and sizes, all malleable iron. Red, black and bright brown. Japanned.

FLAT STEEL KEY LOCKS A SPECIALTY.

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THE BOSTON KNOB CO.,

MANUFACTURERS OF FINE DOOR KNOBS,

No. 169 HIGH STREET,

GEO. F. WHITING, (FORT HILL SQUARE.)

President and Manager.

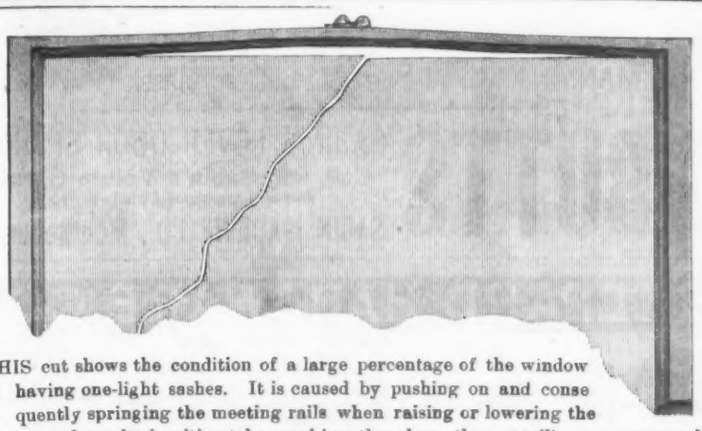
THE peculiar qualities of the Knobs made by the Boston Knob Company are, their great *strength, beauty* and *durability.*

Unlike all others, they improve in appearance, while bronze, brass or wooden knobs commence to depreciate as soon as used. The Knobs manufactured by this Company do not require cleaning or polishing.

They are furnished in a variety of colors to harmonize with the finish or decoration of rooms.

They are warranted to wear as long as any knob made. This Company use the *New Boston Spindle.*

Send to the office of the Company for prices, or to any leading wholesale hardware dealer.



THIS cut shows the condition of a large percentage of the window having one-light sashes. It is caused by pushing on and consequently springing the meeting rails when raising or lowering the windows, and results in ultimately cracking the glass, thus entailing an expense for repairs greater than the cost of applying Wigger's Patent Sash Lifters. These Sash Lifters obviate this trouble and also prove a great convenience in operating this class of windows, as previously described in the columns of *The Iron Age.*

The steadily increasing demand for these goods proves their utility, and also that both Architects and their Clients appreciate their merits, and that many Architects have specified them on buildings to be completed this fall. We shall be pleased, therefore, to send samples, sample cards and circulars (with blank space for dealers' name), on application, as the goods will be supplied exclusively through the Builders' Hardware Trade.

WRITE FOR PRICE LISTS, &c.

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Manufacturers of the Standard

TRADE MARK E

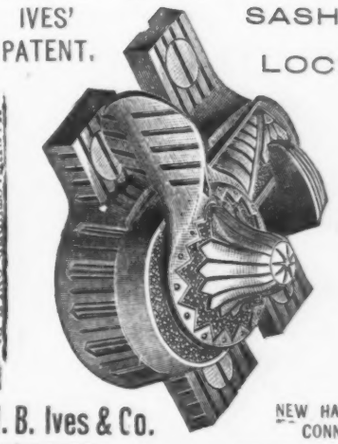
BINDER TWINE

TRADE MARK E

Also CORDAGE of all Kinds

46 South Street, NEW YORK.

IVES' PATENT. SASH LOCK.



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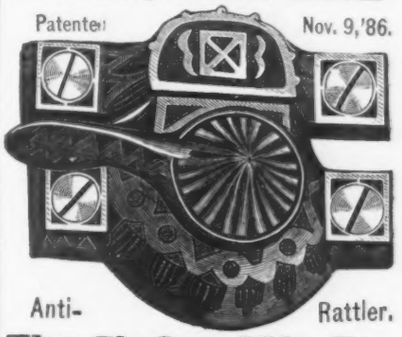
Security Sash Lock

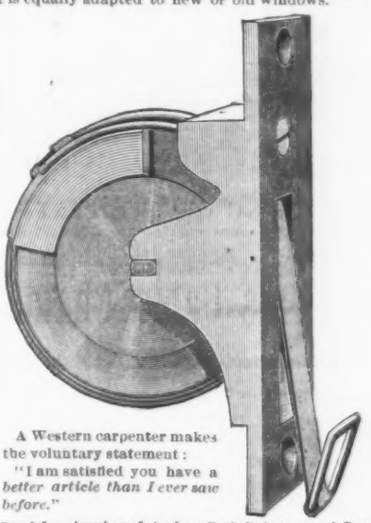


The Claflen Mfg. Co.,

Cleveland, Ohio, S. A., Sole Manufacturers.

The Andrus Sash Balance

The only perfected balance for sash that can be regulated with a brake to carry sashes of various lengths and weights It is no more expensive than weights and cords and much less for heavy windows. It is equally adapted to new or old windows.



A Western carpenter makes the voluntary statement: "I am satisfied you have a *better article than I ever saw before.*"

Send for circular of Andrus Sash Balance and Rose Ventilating and Sash Locks, &c.

WM. H. CALDWELL,

Successor to ANDRUS MFG. CO.,

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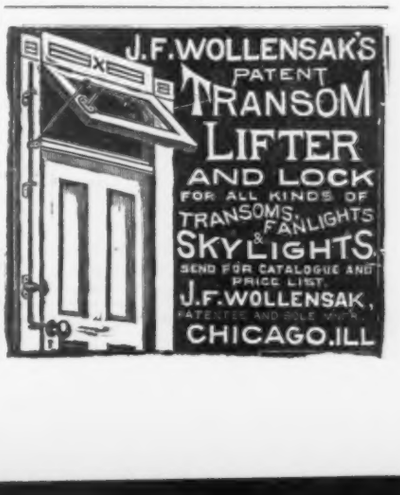
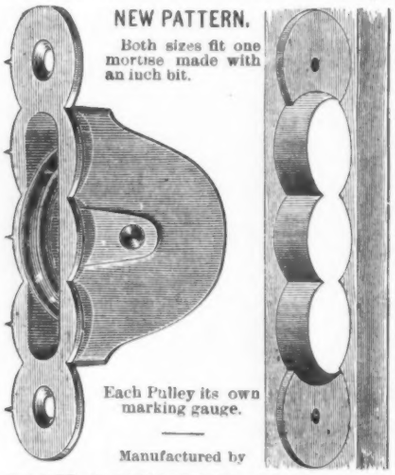


Palmer's Common Sense Frame Pulley.



NEW PATTERN.

Both sizes fit one mortise made with an inch bit.

Each Pulley its own marking gauge.

Manufactured by

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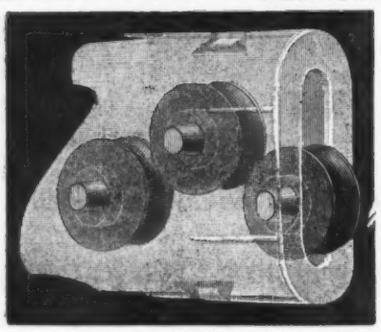
IDEAL SASH PULLEYS.



From two to six of the Ideal can be applied to one of any other make on the market. A great saving of time and money to contractors and carpenters. Marking Gauges furnished with each lot of pulleys. Send for circular and price.

STOVER MFG. CO,

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Broken Sash Cords

—A THING OF THE PAST—

When your windows are hung with

Morton's Cable Chains.

Guaranteed for 10 Years.

Some are now in use 15 years and are as good to day as when put in.

Can be applied wherever cord is used, and without any alteration of pulleys or sashes.

For further particulars address

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The Peabody Door Spring.

The only low-priced Scientific Door Spring made; exerts its greatest power at the latch. Equally desirable for Screen Doors, House Doors, or Store Doors.

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The Queen Anne Screen Co., of Burlington, Vt., are manufacturing an

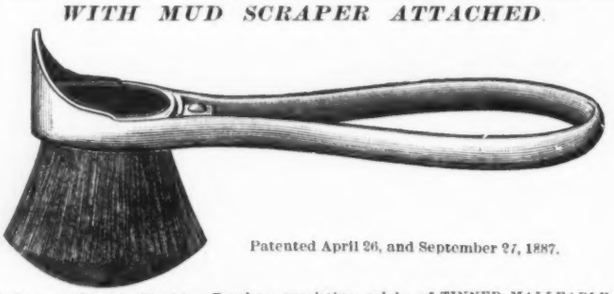
IMPROVED ADJUSTABLE WINDOW SCREEN,

with box panels. *The only one finished alike on both sides*, and both durable and cheap. Also a new frame for window screens and a new pattern of corners for both windows and doors, with sticks for frames.

Send for Circular and Price List.

THE ROYAL DAUBER.

WITH MUD SCRAPER ATTACHED



Patented April 26, and September 27, 1887.

An entirely new thing in Blacking Brushes, consisting solely of TINNED MALLEABLE IRON and PURE BRISTLES. **SOLID, ROUND-FACED, INDESTRUCTIBLE.**

SOLID.—Not bored and drawn, nor secured with pitch or cement. Not several small knots, but ONE SOLID KNOT OF PURE BRISTLES. NO HORSEHAIR.

ROUND-FACED.—Takes Blacking from the box on its centre instead of its edges, and will therefore spread it evener, smoother and thinner, ensuring a better polish than any flat-faced brush.

INDESTRUCTIBLE.—Because the only materials used are tin-coated iron and bristles, put together to stay, the knot of bristles being held IN ONE SOLID MASS, BY COMPRESSION, IN A GRIP OF IRON, and fastened with an iron rivet. Warranted not to "spread" or "clog" with blacking.

WILL OUTLAST A DOZEN OF ANY OTHER KIND.

This DAUBING BRUSH is made WITH A SCRAPER FOR REMOVING MUD FROM THE CREVICES OF THE SHOES. The utility of this is too apparent to need a word of commendation.

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HALF SIZE.

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The Champion Safety Sash Locks.

These locks are being received with universal and enthusiastic approval by Architects, Builders, and Hardware Dealers everywhere. All bear testimony to their unequalled merits.

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THE CHAMPION SAFETY LOCK CO.,

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THE SIDE LOCK

Samson Window Cord.

Solid Braided Lines for Window Cord, Railroad Bell Cord, Masons' Lines, Garden Lines, Clothes Lines, &c., &c. Send for Samples.

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Double Acting Spring **BUTTS**

SABIN'S LEVER DOOR SPRINGS

Coil, and Sabin's Volute Springs

For various purposes made to order.

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SHEPARD HARDWARE CO,

LIGHTNING ICE CREAM FREEZERS. LATEST & BEST.

QUEEN CITY PRESS, FOR FRUIT WINE JELLY &c. — BEATS THEM ALL —

BLIND HINGES. GATE HINGES &c.

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W. R. OSTRANDER & CO.,

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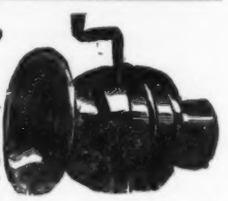
Manufacturers of

SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC MECHANICAL & PNEUMATIC ANNUNCIATORS & BELLS

Complete Outfits of Speaking Tubes, Whistles Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.



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Bit Brace, Ratchet Brace, Combined Ratche Brace and Breast Drill, Angular Borer, and Adjustable Socket Wrenches.

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AMERICAN FOUNDRY PRACTICE

BY THOMAS D. WEST.

One of the best practical works on the management of Cupolas and the Melting of Iron. Fully illustrated with plans and apparatus. Price, $2.50. Sent, postpaid, on receipt of price, by

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No nails or screws used to work out and cut your shelving. Send to

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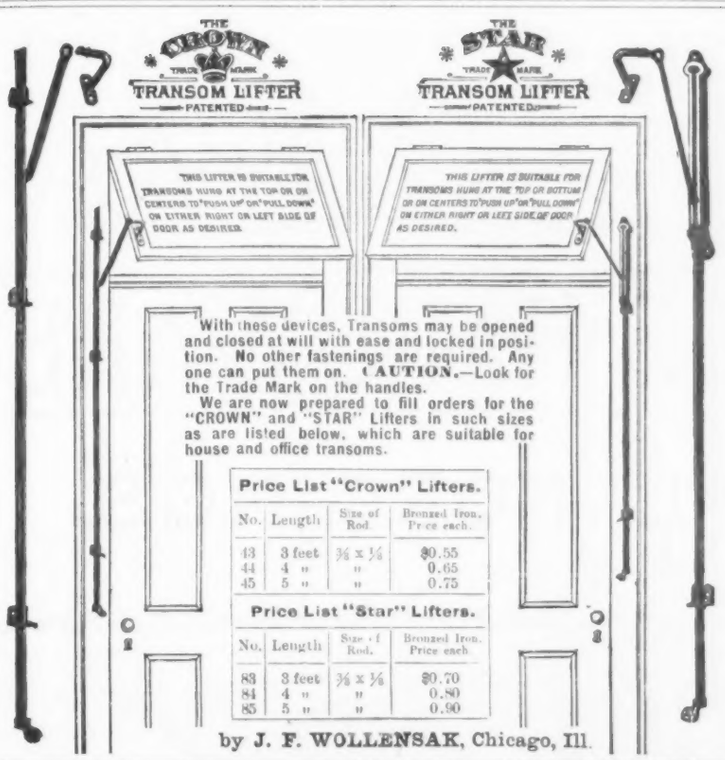

With these devices, Transoms may be opened and closed at will with ease and locked in position. No other fastenings are required. Any one can put them on. **CAUTION.**—Look for the Trade Mark on the handles.

We are now prepared to fill orders for the "CROWN" and "STAR" Lifters in such sizes as are listed below, which are suitable for house and office transoms.

Price List "Crown" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
43	3 feet	⅜ x ⅛	$0.55
44	4 "	"	0.65
45	5 "	"	0.75

Price List "Star" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
83	3 feet	⅜ x ⅛	$0.70
84	4 "	"	0.80
85	5 "	"	0.90

by J. F. WOLLENSAK, Chicago, Ill.

BOSLEY'S FLEXIBLE RUBBER

WEATHER STRIPS.

Solid Rubber—Molded into Shape. All One Piece—No Stitching—No Cementing.

—PATENT APPLIED FOR.—

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Price per foot, 5c.
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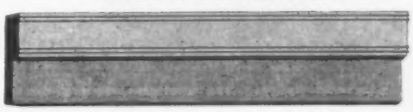

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Price per foot, 8c.
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Price per foot 10c.

These Flexible Weather Strips are put up in lengths of 50 feet, making a package about 6 or 8 inches wide—1000 feet making one foot square. Any one can apply them with tack, hammer and shears. We also manufacture the **Peerless Rubber Window Cleaners and Floor Scrubbers.** *Liberal Discounts to the Trade.*

D. W. BOSLEY & CO., Chicago, Ill.

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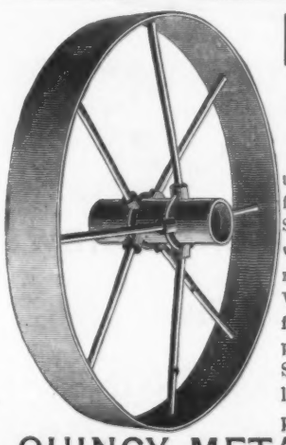
Manufacture nearly *ONE THOUSAND* styles, sizes and varieties of

Extra Fine, Warranted Hand and Bench Tools,

for Watch, Clock, Piano and Cabinet Makers, Jewelers, Printers, Electrotypers, Dentists, Amateurs, Carpenters, Builders, Machinists and almost every kind of Mechanic or Artisan.

Bullock's Patent Combined Steel Blade Meat Chopper, Bone Saw and Steak Tenderer. Just out! Sells at sight! Price per Dozen, net, $4.00. Write for price in gross and great gross lots.

Send Business Card and 4 cents in Stamps for Illustrated Price List.



METAL WHEELS

FOR ALL PURPOSES.

Conceded the best, and used by the leading manufacturers in the United States. The only Wheel in which the spokes are connected to other parts of the Wheel with enlarged tenons, formed in place by heavy pressure and while cold. Send for descriptive catalogue, and mention this paper.

QUINCY METAL WHEEL CO., Quincy, Ill.

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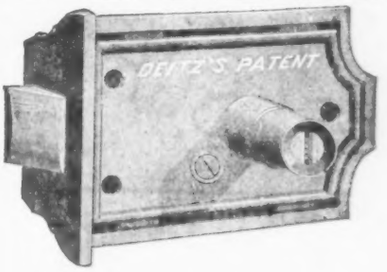

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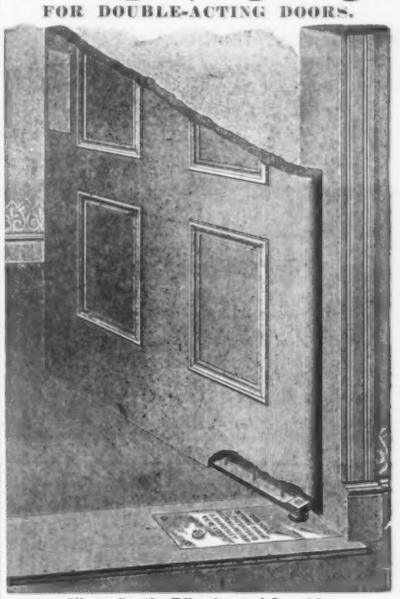
Checking Spring Hinges

FOR DOUBLE-ACTING DOORS.



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—AND—

YALE & TOWNE MFG. CO.,
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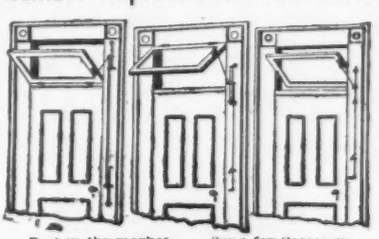
by using our "Worker," which opens or closes them without opening the window. They can be procured at any hardware store or by sending to DODD SHUTTER WORKER CO. No. 26 Church St., N. Y. Agents wanted.

Reihers' Improved Transom Lifters



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MADE BY ANY HOUSE

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STEEL WIRE WHEELS

STRONGEST & MOST DURABLE

MADE. ADAPTED

FOR EVERY THING

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MADE WITH & WITHOUT

RUBBER TIRE.

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FROST'S ANTI-RATTLER

Cut One-half Size.

Sample pair will be sent free to hardware or saddlery firms by addressing

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Nos. 20 to 26 Main Street,

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MANUFACTURERS OF

BLACKSMITH CONES OR MANDRELS.

CAST IRON.

No.	1,	32	in.	high,	8	in.	wide at base,	weight about	56 lbs.
"	2,	48	"		12	"	"	"	115 "
"	3,	52	"		14	"	"	"	140 "
"	4,	54	"		15	"	"	"	200 "

BLACKSMITHS' TOOLS, JACK SCREWS,

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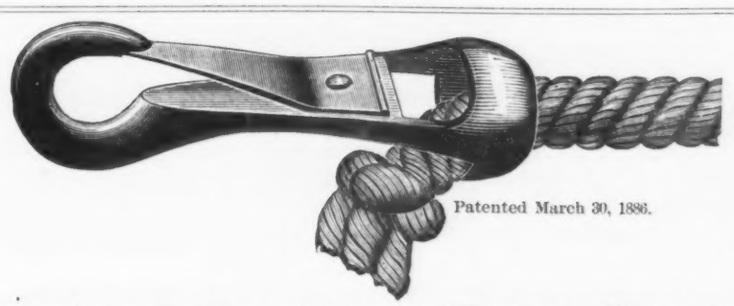
MANUFACTURE THE LARGEST VARIETY OF

FORGED CARRIAGE IRONS

Of Best Material and Workmanship.



Patented March 30, 1886.

Bronzed Southern Rope Snaps.

For Hammocks, Clothes Lines and other Domestic Purposes. Also for Rope Bridles and Driving Reins.

Manufactured by **PRATT & LETCHWORTH.** BUFFALO, N. Y.

CLIFF'S R. H. WAGON SPRINGS.

1888

TITUS & BABCOCK,

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Manufacturers' Agents for

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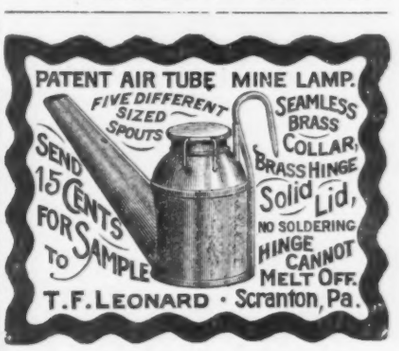
Cliff's 1887 " "

Best Wagon Spring on Earth.

Ram's Horn Buggy Springs.

Al complete, ready to drop onto bolster.

Send for Prices.



METAL-PLATE WORK; ITS PATTERNS AND THEIR GEOMETRY. Also notes on metals, and rules in mensuration for the use of tin, iron and zinc plate workers, coppersmiths, boiler-makers and others. By C. T. MILLIS. **$3.00.** Sent, postpaid, on receipt of price, by DAVID WILLIAMS, Publisher and Bookseller, 66 & 68 Duane Street, New York

Warning to the Trade Against a Dangerous Device.

Experience has taught the trade and the consumer that only a *safe* and *reliable* Horse and Cattle Tie is desirable, and that the *fatal danger* of the *loop shirring* up and *choking the animal* is the *great fault* to be *guarded against.* This has been fully accomplished by the *Covert Patent Thimble*, which has a screw with a centrally located eye and a *point* which *passes through the rope* and renders all *slipping* or *shirring impossible.*

At the time the *Covert* Thimble was placed upon the market the only thimbles then being sold were the *Wiard Socket Patent* and the Sargent-Hull Thimble.

To both of these great objections were made, on account of their liability to shirr and choke the animal, and as soon as the Covert Thimble appeared on the market the *sales of the others rapidly decreased* and in a *few years ceased entirely.* At this juncture Sargent & Co., of New York and New Haven, placed upon the market a thimble which was a *direct infringement* upon the Covert Patent.

Their course in the matter has been fully exposed in our Bulletins and the Trade Journals, and is well-known to the trade.

After suffering considerable damage and loss through their infringements several suits were commenced against the infringers in the United States Court, one of which was on thimbles, and a decree was entered against Sargent & Co. sustaining the validity of the Covert patent and granting a perpetual injunction against the infringers.

To avoid the decree and the consequences they would suffer should they disobey it, they began the manufacture of a *thimble without the point of the screw* or pin, in this respect going back to the *old, obsolete, worthless design of the "Wiard Socket."*

That a thimble *without the penetrating point* is acknoledged to be *dangerous* and *worthless* is proven by the *testimony taken in the suit* above referred to, from which we quote the substance, as follows :

Witness Hull testified as to the *worthlessness* of the *Wiard Socket.*

Witness Turner testified that the firm by whom he was employed had not purchased the Wiard Socket for ten years and had not purchased the Sargent-Hull Cattle Tie Iron for 12 years, that the Covert Thimble which was considered better and more practical, displaced such goods.

Witness Byrne testified that his firm had not bought the *Wiard Socket* for over ten years because they were *unsalable.* That they carried some of the "Wiard Sockets and Screws" in stock for years because *they could not sell them.* He also testified that he heard objections made to the use of the "Wiard Socket and Screw" on Cattle Ties, that they *would slip* on account of the *end of the screw being blunt,* and that the customers and users of horse and cattle ties, and the trade generally made such objections, that he did not think the "Wiard Socket and Screw" practicable because the screw is *liable to be turned* and *one turn* of the screw *would loosen it.*

Witness Leeds testified that his firm had the Wiard Socket and Screw in stock in the store for nine or ten years to his knowledge, because there was *no sale for them.*

Witness Osborne testifies that his firm had the Sargent-Hull Cattle Tie Iron in stock as long as he had been a salesman in the store, which was over ten years, because there was *no sale for them,* and because Covert's Thimble displaced them.

The above witnesses are representatives of some of the largest and most responsible jobbing houses in the United States.

From this testimony it will be seen that any dealer who purchases a thimble *without* a *pointed screw* is almost certain to have the goods *remain upon his hands* as soon as his customers discover the fact, and should he sell them the consumer runs the great risk and danger of having his animals *choked* to *death.*

We therefore *caution* all dealers and consumers to *carefully examine* all the *thimbles* and *rope goods* before purchasing, and be *positive* that the *necessary point is on the screw, or our Trade-Mark on every label or tag.*

By so doing they will *protect themselves against loss and damage* and guard against imposition.

COVERT MANUFACTURING COMPANY,

WEST TROY, N. Y.

BLACK DIAMOND FILE WORKS.

G. & H. BARNETT,

21 to 43 RICHMOND STREET, - - - PHILADELPHIA.

Paris, 1878. *For Superiority.*

McCAFFREY & BRO.,

PENNSYLVANIA FILE WORKS,

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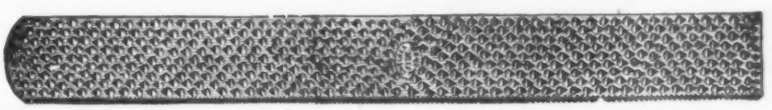
Manufacture and keep in stock a full line of **FILES** and **RASPS** only, for which we claim special advantage over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade.

Superiority acknowledged wherever used, sold or exhibited.

EXCLUSIVELY **HAND-CUT** FILES and RASPS

MANUFACTURED BY THE

CHELSEA FILE WORKS, NORWICH, CONN.



The superiority of our Horse Rasps over all others is universally admitted by those who use them, and their high degree of excellence will be scrupulously maintained. Give them a trial, and use no others.

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Warranted Cast Steel. 467 Keap St., Brooklyn, N. Y'

All descriptions of Files made to order. Price List mailed on application. **Established 1863.**

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10 Sizes.

To Open from 2 to 12 Inches.

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RASPS

OF EVERY VARIETY.

FOR

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MONTGOMERY & CO.,

IMPORTERS OF

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Exhaust Steam Injector, using Waste Steam only, returning it to Boiler with water at 190 degrees.

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SOMETHING NEW THE PATENT ADJUSTABLE BRUSH.

Our new Patent Can can be carried in the pocket and used without danger of soiling from the can or brush; all superfluous glue is removed on wiper. This style is made in three sizes, half pint, gill and half gill. Our regular cans are half pint, pint, quart, two quart and gallon. Bottles, two sizes as heretofore.

At the New Orleans Exposition (where a Gold Medal was awarded) a piece of Georgia pine butted, one inch square, on a Testing Machine, registered 1620 lbs. before parting.

Does not set quickly like the old style Glues, and has FOUR TIMES the strength.

No Heating required.

No other Glues have the RECORD of 1620 lbs. to the square inch.

The fact that the sales of

LEPAGE'S THE ONLY GENUINE LIQUID GLUE

has greatly increased during the past year, so that we have been unable to manufacture the goods as fast as called for is the best proof that the public appreciates A GOOD THING.

To meet this demand we have recently greatly increased the capacity of our works, and have now the most scientifically arranged glue plant in the world, no expense having been spared which would in any way contribute toward the ABSOLUTE PERFECTION of the products.

THE WIDE AWAKE DEALER is not slow to see that it pays him to keep in stock those goods which are sure of QUICK SALES. Don't be cajoled into buying the various Liquid Glues now in the market for which claims are made that cannot be substantiated.

That the Dealer and Public may be sure that they are not deceived in making their purchases we have commenced putting the autograph below on all the Genuine LePage Glues.

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These Glues are used in the Smithsonian Institute, at Washington for all its works of mounting specimens, by the Government Arsenals and Department Buildings, by the Pullman Palace Car Co., Mason & Hamlin Organ and Piano Co., and by thousands of first-class manufacturers and mechanics throughout the world, for all kinds of fine work.

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New York Office, 95 Chambers St.,
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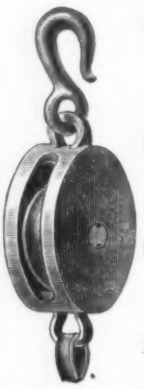

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We would particularly call attention to our

Self-Adjusting Five Roll Roller Bush Blocks

which for strength and durability cannot be equalled by any other make. These Roller Bushed Blocks *give twice the purchase* of the Iron Bushed Blocks, and are far more preferable to use on account of greater ease in hoisting. Try them and find out for yourselves. Call for the "Star Brand" SELF-ADJUSTING FIVE ROLL ROLLER BUSH BLOCKS.

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are much *Stronger, Lighter, more Durable* and Cheaper than all others taking same size rope? No extra charge for our new Self-Lubricating Bushings in our Heavy Purchase and Wire Rope Blocks. Send for List.

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Genuine Improved

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Screw Wrenches

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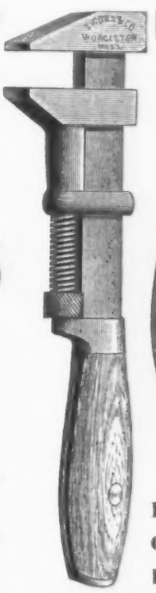

Sectional View Illustrates our New Knife Handle, showing Malleable Iron Frame and Shank of Bar keyed into position.

☞ **Straight Bar, Extra Long Nut for Screw in Jaw.** ☜

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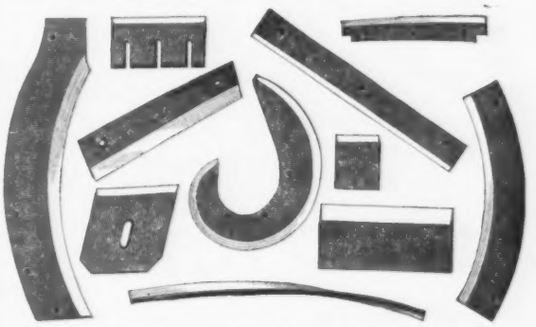
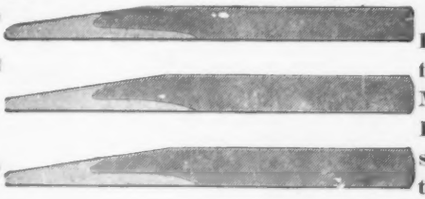


Shear Blades and Strips, Moulding Cutter Plate, Die Stock for Leather, Cloth and Paper Cutting Dies. Lawn Mower and Hay Cutter Knives of every description.



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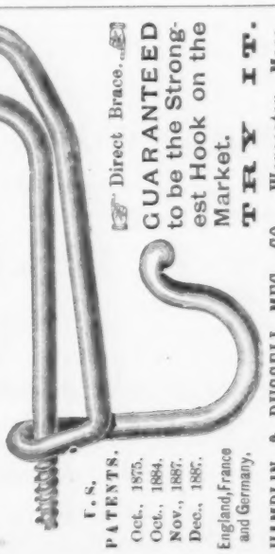

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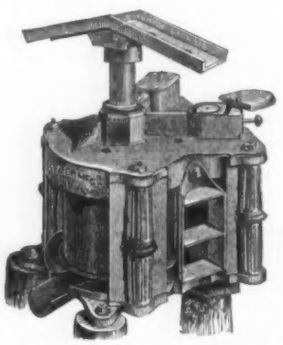

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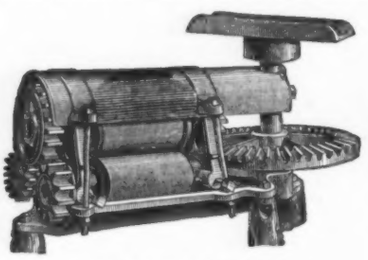
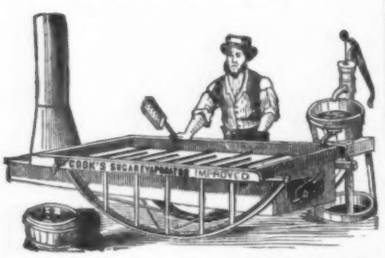


EVAPORATORS.



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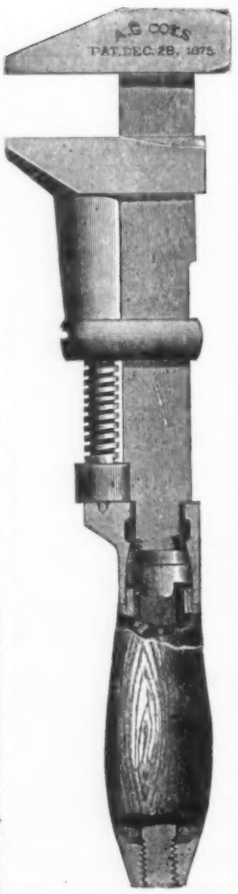

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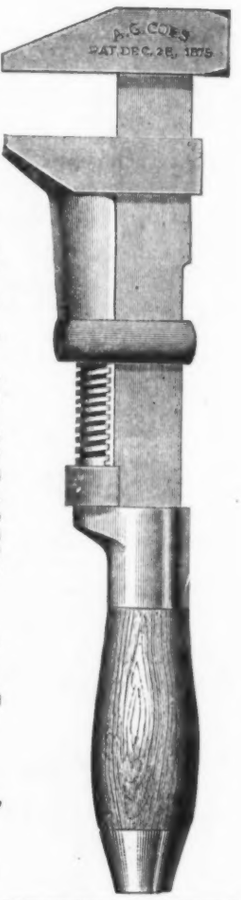
SCREW WRENCHES,



The Strongest Wrench made, and the only successful re-enforced bar.

The Ferrule is firmly secured in place by a nut screwed on the bar.

Particular attention is called to the way in which the handle is made and fastened to the shank.

This Handle is made better and stronger than heretofore by using our new Cup Tip at the end which encloses the wood and keeps it from splitting. This is the only wrench which has the wood handle firmly secured and held together at each end, and it will stand more rough usage and last longer thar any now made. It is not affected heat, cold or moisture.

None Genuine unless Stamped,

A. G. COES & CO.

Warehouse:
113 Chambers
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JOHN H. GRAHAM & CO., Agts.

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PATENT COMBINATION WRENCH.

Case-Hardened Throughout. Parts Interchangeable.

This Wrench not only combines the superior qualities of a Gas Pipe Wrench but also all the requisite combinations of a regular Nut Wrench, thus making a combination which has no equal.

No. 3 PATENT PIPE WRENCH.

The serrated jaws of the Wrench are interchangeable; that is, the same serrated plate may be used for either the stationary or sliding jaw, so that if one plate is broken another can be furnished adapted to either jaw without express designation. The slides, nuts and various parts are also interchangeable, thus easily repairing the Wrench at very small expense, and with as perfect practicability for further use as when the wrench was new.

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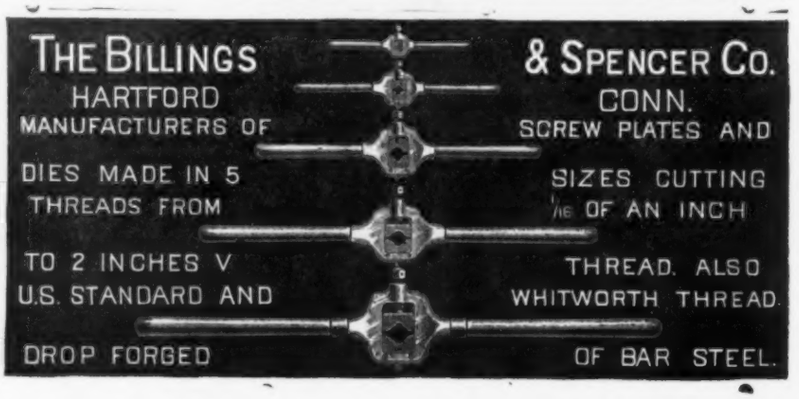
BEMIS & CALL HARDWARE & TOOL COMPANY, Springfield, Mass.

This Wrench can be Furnished with Long Nut or Sleeve.



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MANUFACTURERS OF SCREW PLATES AND
DIES MADE IN 5 SIZES CUTTING
THREADS FROM 1/16 OF AN INCH
TO 2 INCHES V THREAD. ALSO
U.S. STANDARD AND WHITWORTH THREAD.
DROP FORGED OF BAR STEEL.

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MAKER OF

FINE

Counter Scales

AND THE NEW

"STAR" COFFEE MILLS.

PRICE LIST ON APPLICATION.

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PRINCIPAL WAREROOMS:

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Cleveland, Ohio. Cincinnati, Ohio.
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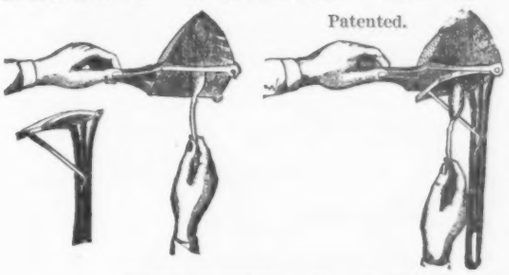
THE "DIEHL"

FRUIT PRESS AND STRAINER.

Patented.



We make this Press with *removable* plunger handle to permit the cups being *easily cleaned*. With the permanent handle it is a most *difficult* thing to *thoroughly clean* a press because the plunger invariably falls *directly* in *front* of the *cup* every time it is turned over to dump the matter out of it.

Without the plunger it makes a splendid *dipper strainer* for dipping and straining out of the pot. It is also a good *gravey, &c., &c. strainer.*

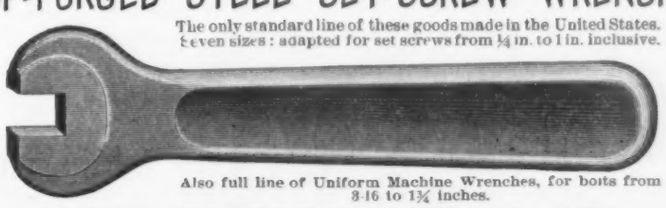
It makes a great, great improvement.

ORDER A LOT AT ONCE.

Paine, Diehl & Co., Philadelphia, Pa.

DROP-FORGED STEEL SET-SCREW WRENCHES,

The only standard line of these goods made in the United States.
Seven sizes: adapted for set screws from ¼ in. to 1 in. inclusive.



Also full line of Uniform Machine Wrenches, for bolts from 3-16 to 1¾ inches.

J. W. WILLIAMS & CO.,

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Brock's Patent Drop Forged Chain Pipe Wrench,

and Lathe Dogs, Collars, Thumbscrews and special Drop Forgings of every description, from Iron, Steel or Copper.

The FRED. J. MEYERS MFG. CO.,

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Henry Four-Piece Sifter,

Mixer, Measurer, Weigher, Scoop, Fruit, Starch and Wine Strainer, Rice Washer, Egg Beater. Also, Hunter's and Electric Light Sifters.

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Favorite Family Scale.

Light, Compact, Durable and Convenient.

This excellent Scale for family use is manufactured only by

JOHN CHATILLON & SONS

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SCALES and BUTCHERS' TOOLS

BUFFALO STANDARD SCALES

AWARDED FIRST PREMIUM

AT THE WORLD'S EXPOSITION, New Orleans. (Four Gold Medals. All other principal makers competing). Track Scales. Hay Scales. Platform Scales, etc. Important patented IMPROVEMENTS. BEST VALUE for YOUR MONEY For circulars, terms and full particulars, address

BUFFALO SCALE COMPANY, BUFFALO, N. Y.

WRITE THE

American Oil Stove Co., Gardner, Mass.,

FOR PRICES, &c.

OF THEIR

NEW LAMP STOVE.

About three times the power of the common Lamp Stove and only weighs ½ lb. more. Positively new and novel. No competition and will "sell like hot-cakes." Our new four-story brick factory gives us facilities for supplying everybody.

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Pat. Dec. 15—88.

P. J. CONROY & CO.,
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Manufacturers of
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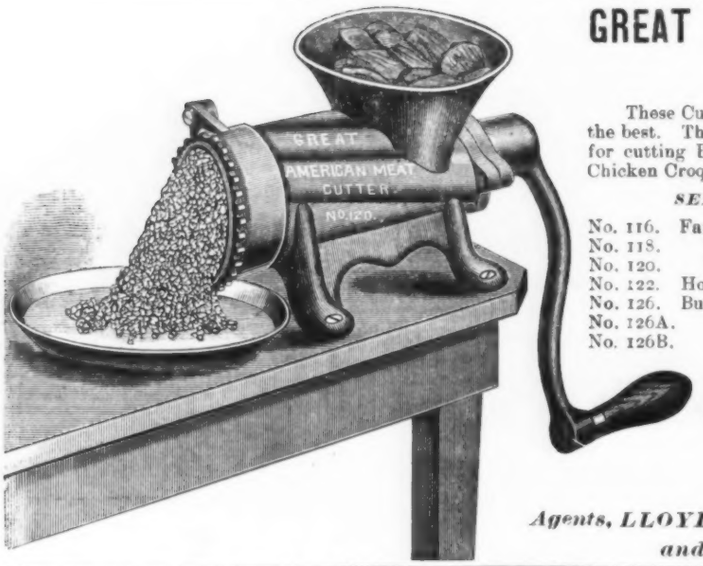
REFRIGERATOR
DOOR FASTENERS,
HINGES AND OTHER
Refrigerator Trimmings

ESTABLISHED 1826.

C. S. OSBORNE & CO.,

NEWARK, N. J. STANDARD Manufacturers of PLUMBERS' TOOLS. Send for Price List. Ask your dealer for our make and take no other.



GREAT AMERICAN MEAT CUTTERS

HAVE NO EQUAL.

These Cutters are what the name INDICATES, and are pronounced the best. They have a double cutting operation, and are unequalled for cutting Breakfast Hash, Sausage Meat, Mince Meat, Scrapple, Chicken Croquettes, Hamburg Steak, &c.

SEND FOR ILLUSTRATED PRICE LIST.

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No. 118.	" " " - - - "	[illegible].00
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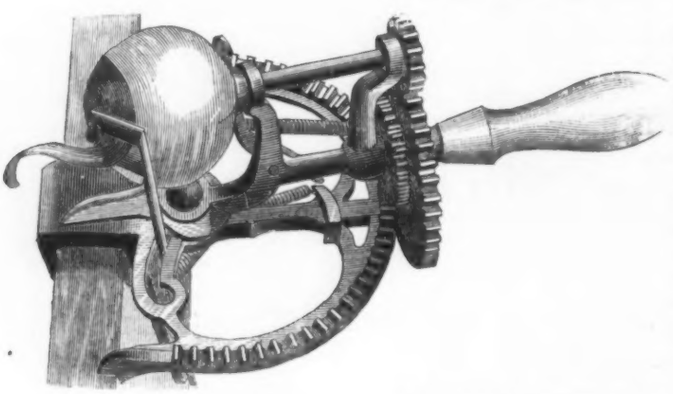

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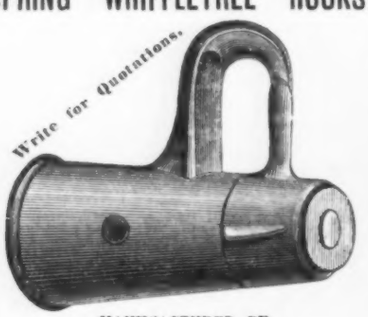

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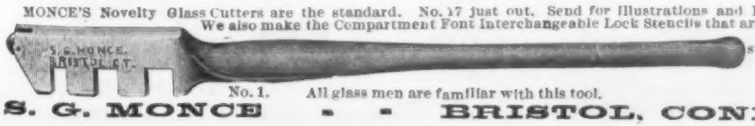

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Extract from the "Daily Register," the New York Law Journal, July 7, 1888.

ANDREWS, J.

Baeder et al. v. Baeder et al. (two cases)—After a careful examination of the voluminous papers submitted in these cases I am of the opinion that Baeder, Adamson & Co. branded their second quality of flint paper with the word "Baeders," for the express purpose, and with the effect of inducing the public to purchase such second quality of paper as and for the first quality of the flint paper of the plaintiffs. William A. Baeder and Howard R. Kern; and that the defendant, the Russell & Erwin Mfg. Co. have, knowingly and intentionally, actually sold such second quality paper of Baeder, Adamson & Co. as and for the first quality paper of said William A. Baeder and Howard R. Kern. These acts of Baeder, Adamson & Co., and of the Russell & Erwin Mfg. Co. are clearly unlawful, and the motion to continue until the trial of the action the injunction, heretofore granted by Mr. Justice Barrett, in the action brought against those parties by Baeder & Kern will be granted, with $10 costs. I do not think that the mark used by Baeder & Kern can be considered a simulation of Baeder, Adamson & Co.'s first quality mark, nor that it is intended or calculated to mislead or deceive purchasers into taking Baeder & Kern's Paper as and for the first quality paper of Baeder, Adamson & Co. The motion for an injunction, in the action brought by Baeder, Adamson & Co. against William A. Baeder & Kern will be denied, with $10 costs.

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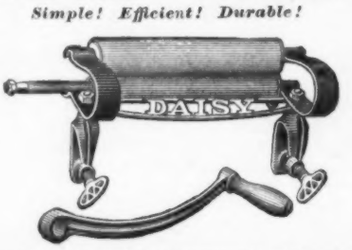

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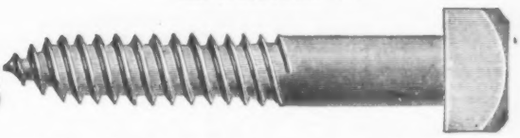

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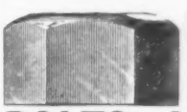

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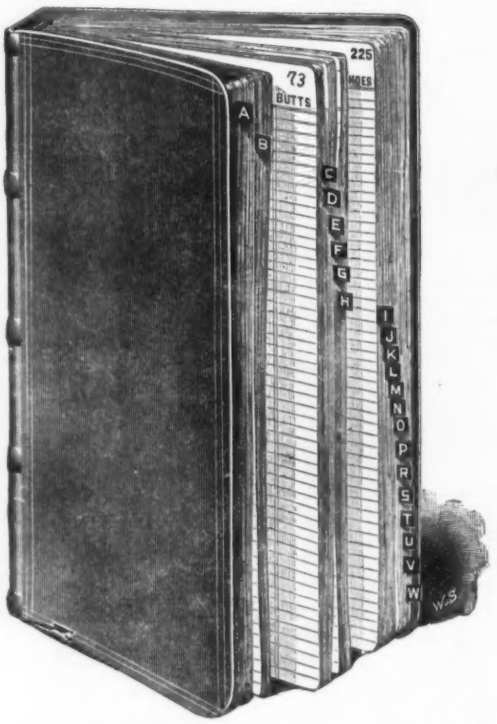

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Sellers, Wm. & Co., Philadelphia, Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cutlery, *Importers of.*
Clatworthy, F. & W., N. Y
Dame, Stoddard & Kendall, Boston, Mass.
Field, Alfred & Co., N. Y.
Gurney, F. B., 116 Chambers St., N. Y.

Cutlery, *Manufacturers of.*
Bingham, W. & Co., Cleveland, Ohio.
Goodell Co., Antrim, N. H.
Healy, C. J. & Co., 26 Warren, New York.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Dampers.
Shepard Hardware Co., Buffalo, N. Y.
Shepard, Sidney & Co., Buffalo, N. Y.

Daubers
Peabody & Parks, Troy, N. Y.

Door Checks.
Bardsley, J., 59 Elm St., New York.

Door Hangers, House and Barn.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. Co., Chicago, Ill.
Stearns, E. C. & Co., Syracuse, N. Y.

Door Knobs.
Boston Knob Co., Boston, Mass.

Door Springs.
Paine, A. W., Peaboy, Mass.

Drilling Machines.
Dallett Thos. H. & Co., Philadelphia
Dwight Slate Machine Co., Hartford Conn.
Illinois Iron & Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Sigourney Tool Co., Hartford, Conn.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Universal Radial Drill Co., Cinn.

Drills, Upright.
Currier & Snyder, Worcester, Mass.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Billings & Spencer Co., Hartford, Ct.
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Scranton Forging Co., Scranton, Pa.
Williams, J. H. & Co., Brooklyn, N. Y.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Beecher & Peck, New Haven, Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Edward Storm Spring Co. Poughkeepsie, N. Y.

Edge Tools, *Makers of.*
White, L. & I. J., Buffalo, N. Y.

Egg Poachers.
Paine, Diehl & Co., Philadelphia.

Electrical Supplies.
Wollensak, J. F., Chicago, Ill.

Electric Bells.
Ostrander, W. R. & Co., New York.

Electric Lighting.
The Brush Electric Co., Cleveland, O.
Waterhouse Electric & Mfg. Co. Hartford, Conn.

Electric Dynamo Machines.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct

Elevators, *Makers of.*
Morse, Williams & Co., Phila., Pa.
Stokes & Parrish Elevator Co., Philadelphia, Pa.

Emery Paper, Cloth, &c.
Walpole Emery Mills, S. Walpole, Mass

Emery Wheels.
New York Belting and Packing Co. 15 Park Row, N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Springfield Glue and Emery Wheel Co., Springfield, Mass.
Sterling Emery Wheel Co., 17 Dey Street, N. Y.
The Tanite Co., Stroudburg, Pa.
Waltham Emery Wheel Co. Waltham, Mass.

Engineering Implements & Supplies.
Queen & Co., Philadelphia, Pa.

Engineers.
Gordon, Strobel & Laureau, Phila.

Engineers and Contractors.
Lauhlin, A. & Co., Cleveland, O.
Lean & Blair, Pittsburgh, Pa.
McClure & Shuler, Pittsburgh, Pa.
McKenna, Ryan & Sons, Pittsburgh.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa.
Stein & Schwarz, Philadelphia, Pa.
Swindell Construction Co. Pittsburgh, Pa.
Waite & Van Harlingen, Phila. Pa.

Engines, Gas.
Clerk Gas Engine Co., Phila., Pa.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam. *Makers of.*
Climax Mfg. Co., Corry, Pa.
Farquhar, A. B. & Son, York, Pa.
Harrisburg Car Mfg. Co., Harrisburg Pa.
Leffel Jas. & Co., Springfield, O.
Newell Universal Mill Co., 10 Barclay N. Y.
Payne B. W. & Sons, 49 Dey, N. Y
Russell & Co., Massillon, Ohio
Norwalk Iron Works Co., S. Norwalk
Todd Wm. & Co., Youngstown, O.
Valley Iron Works, Williamsport, Pa
Wetherill Robt. & Co., Chester, Pa.

Engravers and Printers.
Conant, J. S. & Co., Boston, Mass.
Kyes & Woodbury, Worcester, Mass.

Evaporators.
Oyler, Geo. K., St. Louis, Mo.

Exhaust Pipe Condensing Head.
Aller, Amos, 109 Liberty, N. Y.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn, N. Y.

Faucets, Self-Measuring.
Enterprise Mfg. Co., Philada., Pa.

Faucets, *Makers of.*
John Sommer's Son, Newark, N. J.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn

Fences, Wrought Iron.
Champion Iron Fence Co., Kenton, O.

Files, *Importers of.*
Montgomery & Co., 105 Fulton, N. Y.
Moss, F. W. 30 John, N. Y.

Files and Rasps, *Manufacturers of.*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
Jetter Mfg. Co., Buffalo, N. Y.
McCaffrey & Bro.,, Philadelphia.
Nicholson File Co., Providence, R. I.
Paul Chas. B., Williamsburg, N. Y.

Fire Brick, *Makers of.*
Birmingham Fire Brick Works, Birmingham, Ala.
Borgner & O'Brien, Philadelphia, Pa
Gardner James, Cumberland, Md.
Haws, A. J. & Sons, Johnstown, Pa.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer H. & Son, 420 E. 23d, N. Y.
Newton & Co., Albany, N. Y.
Ostrander James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine M. D. & Bro., Woodbridge.

Fish Hooks.
Alford & Berkele Co., 77 Chambers St., N. Y.

Fishing Tackle.
Field, J. B. & Co., Detroit, Mich

(See Alphabetical Index, Page 84.)

Flint Garnet Paper.
Bieder Flint Paper Co., 283 Pearl, N Y
Upton Geo., Boston, Mass.

Flour Sifters.
Fred. J. Meyers Mfg. Co., Covington, Ky.

Foreign Iron Merchants.
Jno G. Rollins, London England.

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y.
Bullock, T. H., Cleveland O.
Buffalo Forge Co Buffalo, N Y.
Champion Blower and Forge Co. Lancaster Pa.
Sturtevant B. F., Boston, Mass.

Forgings, Iron and Steel.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Miller Forge Co., Pittsburgh, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg Co., Cincinnati, O.

Foundry Riddles.
Estey W. S., 71 Fulton, N. Y.

Foundry Supplies.
Detroit Foundry Equipment Co., Detroit Mich.
S. Obermayer, Foundry Supply Mfg Co., Cincinnati, O.
Paxson J. W. & Co., Philadelphia.

Friction Clutches.
Hill Clutch Works, Cleveland, O.
Moore & White Co., Philadelphia, Pa.

Friction Pulleys.
Sandy Hill Iron and Brass Works, Sandy Hill, N. Y.

Furnace Hoists.
Stokes & Parrish Machine Co., Phila.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila, Pa.

Gears.
Grant, Geo. B., Boston, Mass.

Gear Cutters.
Grant, Geo. B, Boston, Mass.
D. E. Whiton Mach. Co., New London Conn.

Glass Cutters.
Andress, Thos. J., Philadelphia, Pa.
Monce, S. G., Bristol Conn.

Glue.
Le Page Liquid Glue and Cement Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.
Upton, Geo., Boston, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hammers, Steam.
Bradley & Co., Syracuse, N. Y.

Hand Force Pumps.
Union Mfg. Co., 103 Chambers, N. Y.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field Alfred & Co., N. Y.
Jacobus, W. H. & Co., N. Y.

Hardware Manufacturers.
Brand Mfg. Co., New Britain, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Vaughan & Bushnell Mfg. Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H., 115 Chambers, N. Y.

Hardware Shelf Boxes.
Green S. H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.
Sharp H. H. & Co., Philadelphia, Pa.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit Brace Co., Buffalo, N. Y.
Enterprise Mfg Co., Philadelphia, Pa.
Greene Tweed & Co., N. Y.
Paine, Diehl & Co., Philadelphia, Pa.
Rex A. C. & Co., Philadelphia, Pa
Saxton E. R., Buffalo, N. Y.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Carriers.
Myers F. E. & Bro., Ashland, O.

Hay Fork Pulleys
Boston and Lockport Block Co., Boston Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hinges.
Union Mfg. Co., 103 Chambers, N. Y.

Hog Ringers.
Chambers, Bering & Quinlan Co., Decatur

Hoisting Machines.
Box Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington E. Son & Co., Phila.
McCoy & Sanders, 26 Warren, N. Y.
Morse Williams & Co. Phila.
Sellers Wm. & Co, Phila. and N. Y.
Teal Hoist Co., Philadelphia.

Hollow Ware.
N. Y. Stamping Co., Brooklyn, N. Y.

Horse Nails, *Makers of.*
National Horse Nail Co, Vergennes.

Horse Shoes, *Makers of*
Phoenix Horse Shoe Co., Poughkeepsie N. Y
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose Clamps.
Tuerk Water Meter Co Syracuse, N.Y.

Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa.

Hydrants, &c.
McLean John, N. Y.

Hydraulic Jacks.
Dudgeon Richard, N. Y.
Watson & Stillman, 204 E. 43d, N.Y.

Ice Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.

Indurated Fibre Ware
Union Indurated Fibre Co., N. Y

Injectors.
Aller, Amos, 109 Liberty, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox Justice, Jr., & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Hoffman J. W. & Co., Philadelphia.
Levis Henry & Co., Philadelphia.

Iron, *Manufacturers of.*
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Long & Co., Pittsburgh, Pa.
Mahoning Valley Iron Co., Youngstown, O.
Montour Iron & Steel Co., Danville.
Moorhead-McCleane Co., Pittsburgh, Pa
Passaic Rolling Mill Co., Paterson.
Phoenix Iron Co., 410 Walnut, Phila.
Pottstown Iron Co., Pottstown, Pa.
Stuart & McLean, Pittsburgh, Pa.
Troy Steel and Iron Co., Troy, N. Y.
Whitney A. R. & Co., 58 Hudson, N.Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philp C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Etting Edward J., Philadelphia, Pa.
Walbaum W. H. & Co., Philadelphia Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia.
Horan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia.
Mohr J. J., 430 Walnut, Phila.
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila., Pa.
Hart, Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co., Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 100 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig, *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet, *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O.

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Millers Falls Co., 91 Reade, N. Y.
Prybil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co. Newburg N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Mast, Foos & Co., Springfield, O

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. F., Athol, Mass.

Locks and Knobs, *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co., Bridgeport.
Quackenbush, Abram, New York.
Yale & Towne Mfg. Co., Stamford

Machinery.
Adt John & Son, New Haven, Conn.
Barnes W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Bullard E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray's Ferry F'd'y & Boiler Co., Phila. Pa.
Gray, R. J. & Co., 131st & 4th Ave., N.Y
Harrington, E. Son & Co., Phila., Pa.
Hendey Machine Co., Torrington, Ct.
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge, Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Nicholson & Waterman, Providence, R. I.
Pedrick & Ayer, Philadelphia, Pa.
Prybil P., 467 W. 40th, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers Wm. & Co., Phila.
Snell, Henry L., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. Fd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co. Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. & Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Meat Choppers.
Enterprise Mfg Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N.Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Thomas, Dago J., 1 Broadway, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co., Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co., 139 Greenwich, N.Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Wash'ton N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford. Conn.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y.

Norway Shapes, *Rollers of.*
Naylor & Co., 99, John, N. Y.
Rowland William & Harvey, Frankford Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester
Wilson J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn

Oil Stones.
A. F. Pike Mfg. Co., Pike Station, N. H.
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardner, Mass.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt Carmel, Conn.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-Spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co., N.Y.

Padlocks.
Fraim, E. T., Lancaster, Pa.

Pails.
Brower, John, New York.

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton
Stocking E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co., Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Pig Iron.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, *Makers of.*
Donaldson Iron Co, Emaus, Pa.
Fox John, 160 Broadway, N. Y.
Morris, Tasker & Co., 224 South Third street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co. St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Police Equipments.
French, S. A., 400 Broome St., N. Y.

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N Y

Post Hole Diggers.
Lagonda Mfg. Co., Springfield, O.

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Power Hammers.
Belden R. A. & Co., Danbury, Conn.
Bradley & Co., Syracuse, N. Y.
Dienelt & Eisenhardt, Philadelphia
Duncan, W. P. & Co., Bellafonte, Pa.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Power Transmission Machinery.
Hill Clutch Works, Cleveland, O.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Presses, Power, *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn.

Pulleys.
Edinburg Pulley Co., Edinburg, Md.

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Gould's Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co, Cleveland, O
Keystone Engine and Machine Wks Phila., Pa
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Eastampton, Mass.

Pumps, Force.
Myers F. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y.

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Pumps. *Makers of.*
Clark Bros., Belmont, N. Y.
Columbiana Pump & Machine Co.
Douglas W. & B., Middletown, Conn.
Goulds Mfg. Co., 60 Barclay, N. Y.
Silver & Deming Mfg. Co., Salem, O.
Union Mfg. Co., 103 Chambers, N. Y.

Punching and Shearing Presses.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown Pa.
Joliet Steel Co., 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y.
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. S. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, S. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Cowles Mfg. Co., Bridgeport, Ct.

Razors.
Dame, Stoddard & Kendall, Boston, Mass.
J. R. Torrey Razor Co., Worcester Mass.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia,

Refrigerator Trimmings.
Brainerd & Co., 97 Chambers St., N. Y.

Rivets.
Disosway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rock Drills.
Clayton Air Compressor Works, Brooklyn, N. Y., and Dey, N. Y.

Rolling Mill Machinery.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co., Pittsburgh, Pa
Seaman, Sleeth & Black, Pittsburgh.

Rope Snaps.
Pratt & Letchworth, Buffalo, N. Y.

Rules, *Manufacturers of.*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Balances.
Caldwell, W. H., Rochester, N. Y.

Sash Cords and Chains.
Morton Thos., 65 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clarin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers st., New York.
Ives H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co, Troy, N. Y.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury, Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Truax, Chauncey S., 64 College Place, N. Y.

Scales. *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons, Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Riehle Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Decatur Coffin Co., Decatur, Ill.
Ehrich Hdw. Mfg. Co., Plantsville, Conn.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S., 205 Quarry, Philadelphia
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls N. Y.
King, O'Connor & Co., Baltimore, Md.

Scythe Stones and Whetstones.
A. F. Pike Mfg. Co., Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 27 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Schollhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.
Rowlands Sons, T., Philadelphia, Pa.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown, Conn.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen, 105 Walker, N. Y.

Sporting Goods.
Field, J. B. & Co., Detroit, Mich.

Spelter.
Manning & Squier, 111 Liberty, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.

Spring Hinges.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Strops.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., *Makers of*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon Richard 24 Columbia, N. Y.
Duncan W. P. & Co., Bellefonte Pa.

Steam Heating.
Broomell & Sanas, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Coiville Steam Pump Co., St. Louis, Mo
Hughes Steam Pump Co., Cleveland, O.
McGowan John H. &Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk.

Steam Traps.
Aller Amos, 109 Liberty, N. Y.

Steel Figures and Alphabets.
Stutsman J. M., 181 William, N. Y.

Steel Importers.
Abbott Jere & Co., N.Y. & Boston.
Hobson Francis & Son, 97 John, N. Y.
Jessop Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West, N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones H. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N.Y.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John. N. Y.
Jones, B. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller, Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss F. W., 83 John, N. Y.
Naylor & Co., 99 John, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N.Y.
Wardlow S. & C., Sheffield, Eng.
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beavor-Webb, J., 145 Broadway.
Hicks & Dickey, Philadelphia, Pa.

Steel Nails
Bellaire Nail Works, Bellaire, O. io.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs, *Manufacturers.*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N. Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng. 91 John, N. Y.
Leng John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops
J. R. Torrey & Co., Worcester, Mass.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W., Springfield, Mass.
Ehrich Hdw. Mf. Co., Plantsville, Ct.
Hosgue, J. H & Co., Chicopee, Mass
Humphrey Tool Co., Warren, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Transom Lifters.
Reiher F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks. *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Riehle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co., 19 Mur'y, N. Y.

Tubes, Steel.
Leng John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Masers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Leng John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 29 Dey St., N. Y
Tower & Lyon, 95 Chambers St. N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers.
Lanman, E. B., Columbus, O.
Mason Iron Co., Philadelphia, Pa.

Washing Machines.
Wayne, Anthony, Mfg. Co., Fort Wayne Ind.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York.

Water Motors.
Tuerk Water Meter Co., Syracuse, N. Y

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

Wheelbarrows.
Pugsley & Chapman, 8 Liberty, N Y

Whiffletree Hooks,
Head's Iron Foundry, Utica, N. Y.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.

Wheels.
Quincy Metal Wheel Co., Quincy, Ills.
I. A. Weston & Co., Syracuse, N. Y

Window Cleaners.
Bosley, D. W. & Co., Chicago.

Window Cord, *Makers of.*
Tolman, J. P. & Co., Boston, Mass.

Window Screens.
Darby, Edw. & Sons, Philads., Pa.
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren St., N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd, Pittsburgh, Pa
Howard & Morse, 45 Fulton, N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co., Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg Co., Worcester.
Worcester Wire Co., Worcester, Mass

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass.
Darby Edward & Sons, Philadelphia.
Estey W. S., 71 Fulton, N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse, 45 Fulton, N. Y.

Wire Goods, *Manufacturers of.*
Brooks M. S & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville
Howard & Morse, 45 Fulton, N. Y.
Knapp & Hague, New York.
S. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
Adt John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Sweetser, W. A., Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Birmingham Wire Nail Co., Birmingham, Ct
Dunbar, Hobart & Co., 39 Warren, N. Y
Field A. & Sons, Taunton, Mass.
Hartman Steel Co. Ltd., Pittsburgh Pa.
Phillips E. & Sons, South Hanover
Phillips, Townsend & Co., Phil., Pa
Pittsburgh Wire Nail Co., Pittsburgh Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
Wire Goods Co., Worcester.
Trufant W. E., Whitman, Mass.
Whitney A. R. & Co., New York City.

Wire Rods, Steel.
Whitney A. R. & Co., N. Y.

Wire Rope, Iron and Steel. *Makers.*
Broderick & Bascom, St. Louis, Mo.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St Louis, Mo.
Upson, Walton & Co., Cleveland, O.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Fall N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co Springfield, Mass.
Billings Spencer & Co., Hartford Conn.
Coes Wrench Co, Worcester, Mass.
Utility Wrench Co, N. Y.
Williams, J. H., Brooklyn, N. Y.

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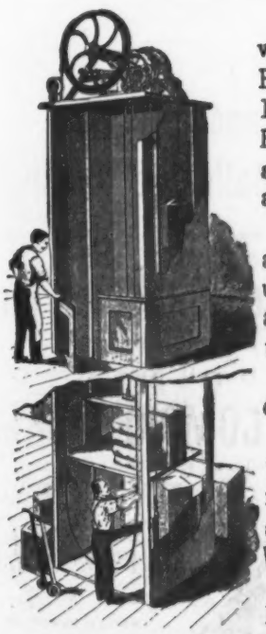

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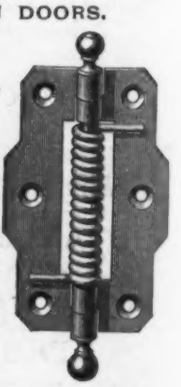

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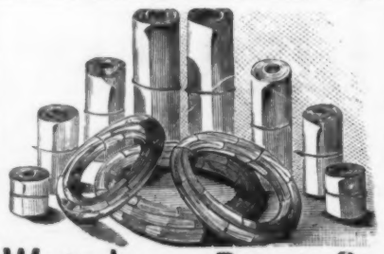

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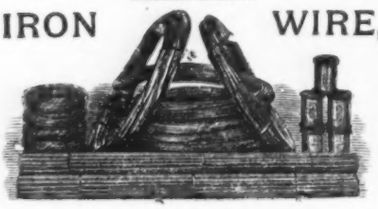

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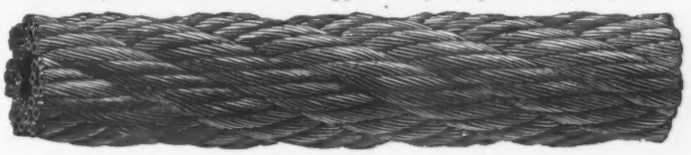
Wire Rope  and Cable.

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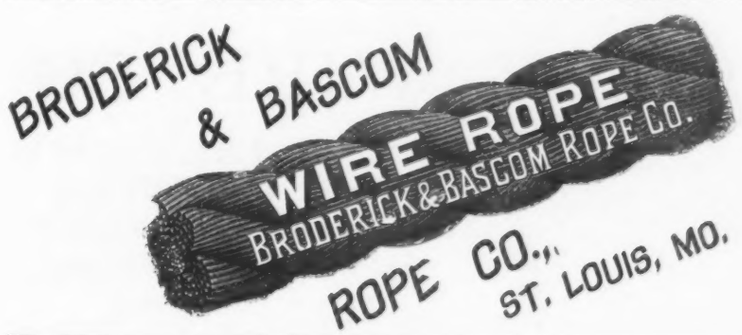

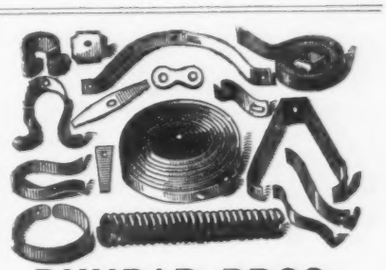

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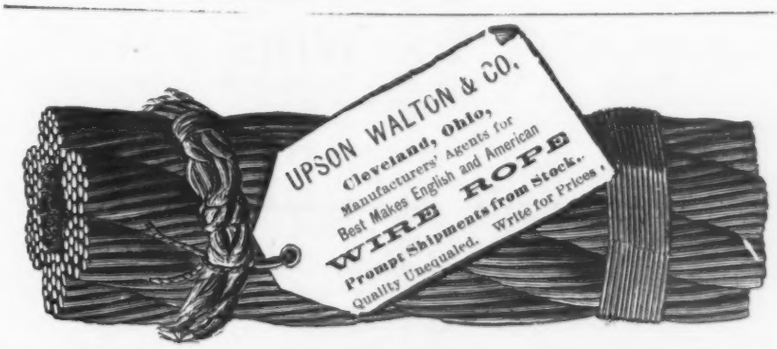

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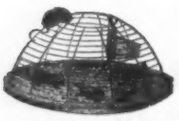

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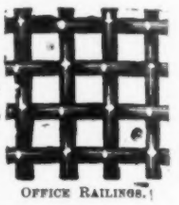

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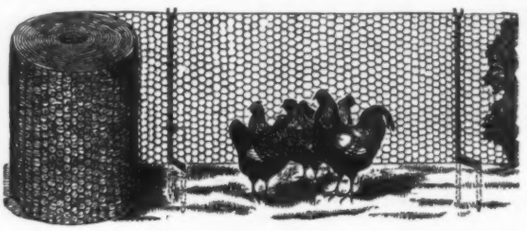

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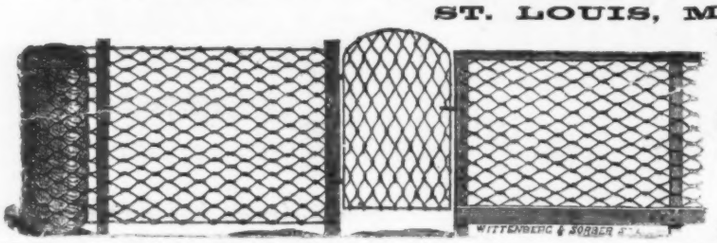

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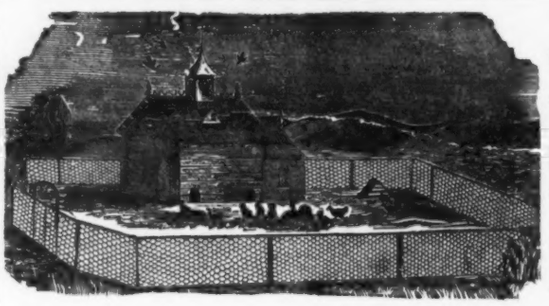

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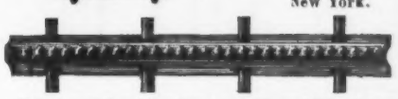

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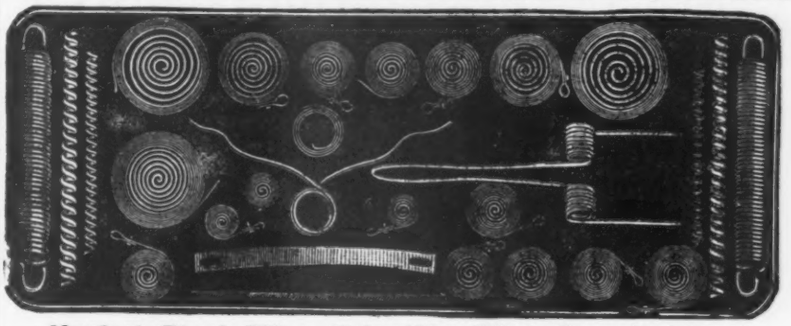

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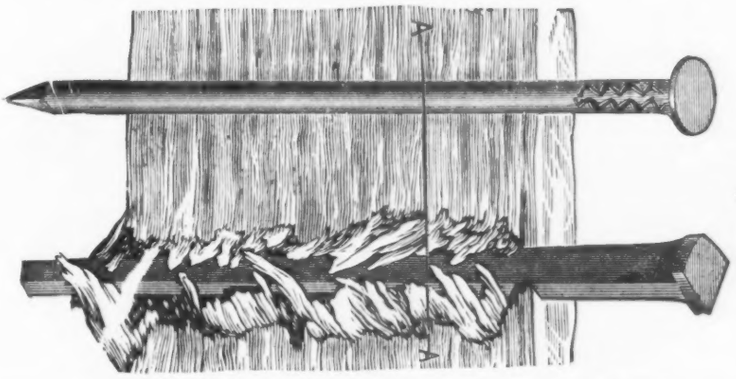

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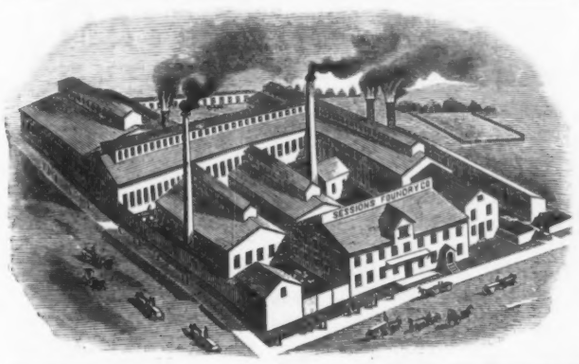

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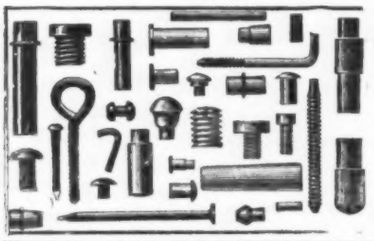

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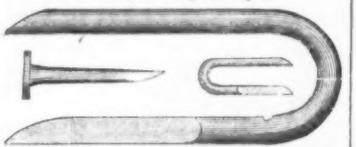

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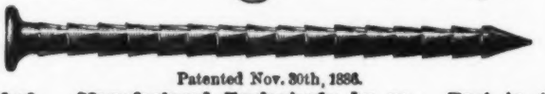

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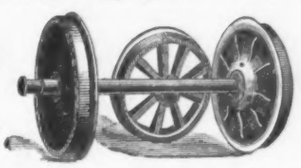

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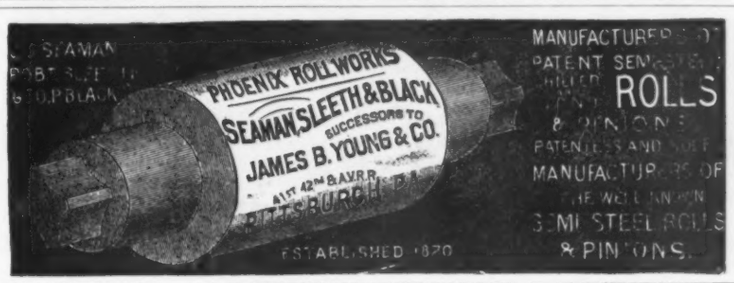

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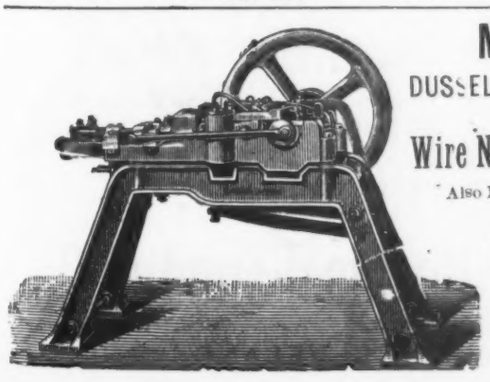

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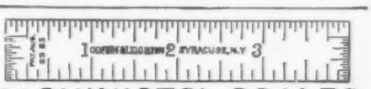

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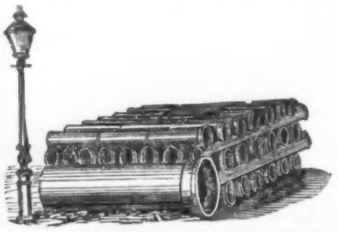

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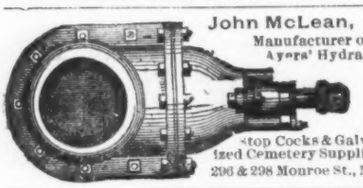

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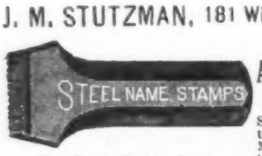

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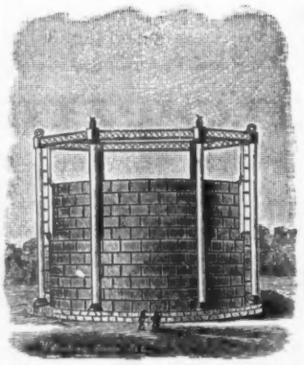

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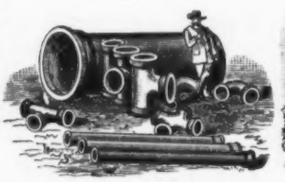

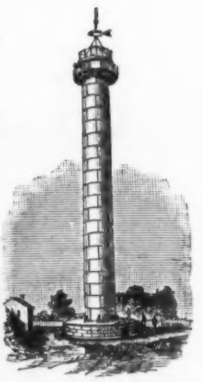

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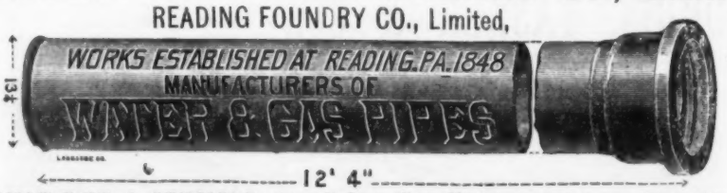

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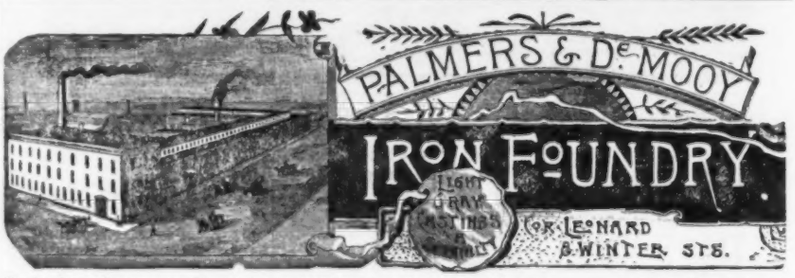

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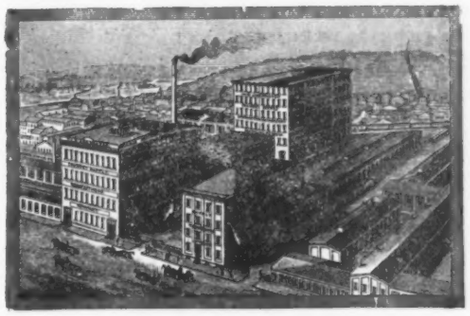

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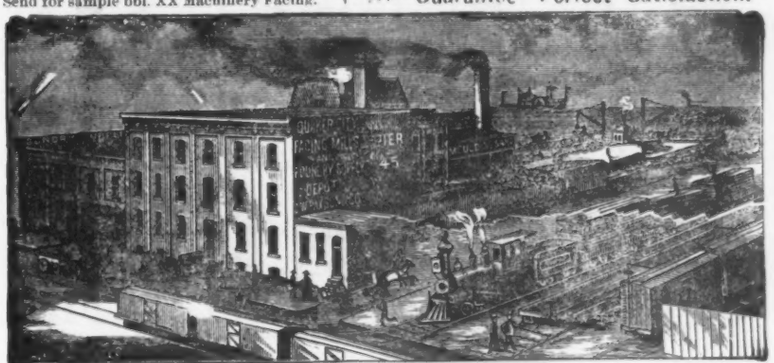

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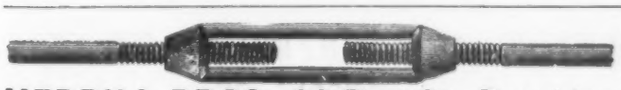

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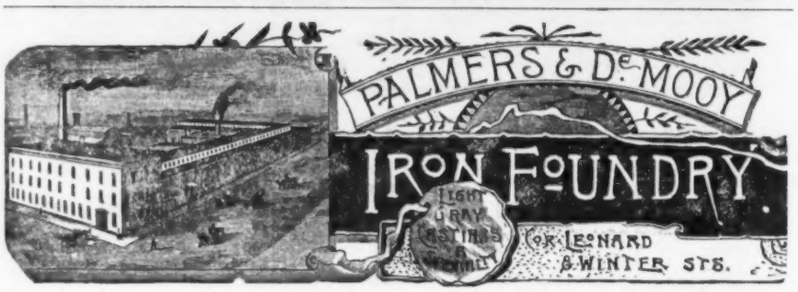

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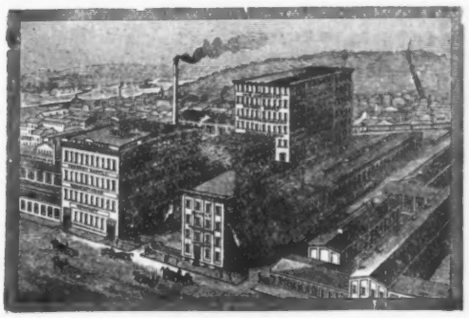

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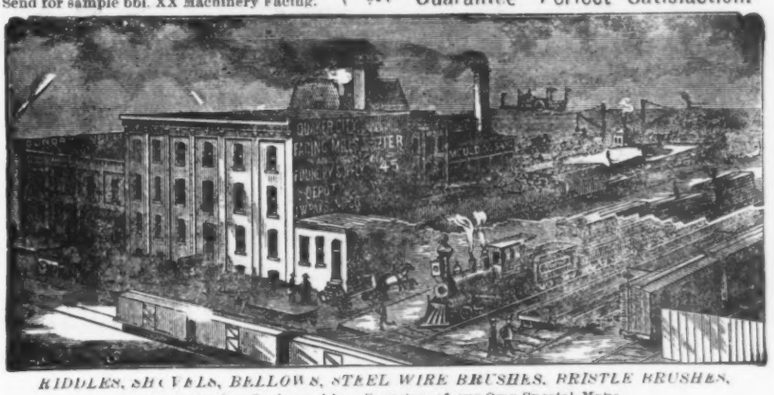

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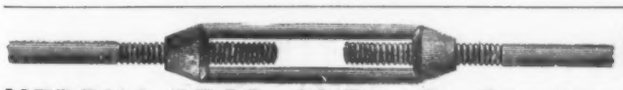

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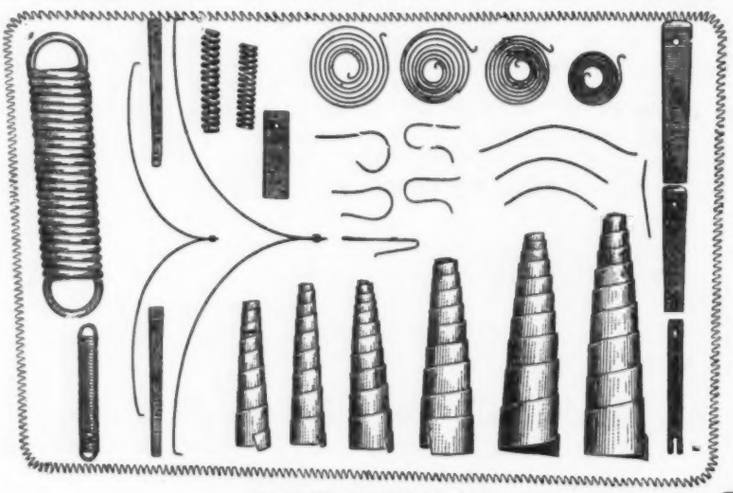

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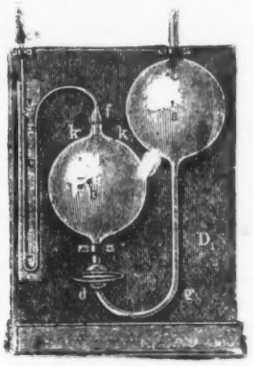

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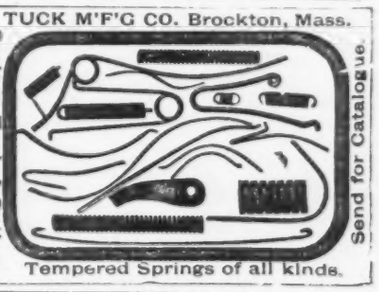

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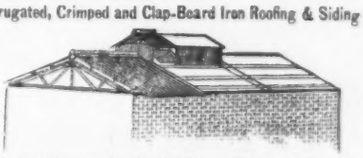

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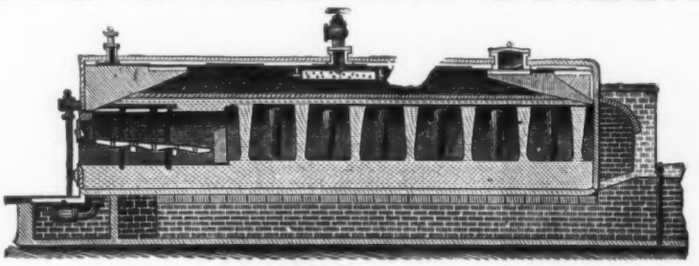

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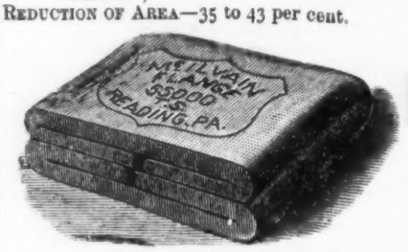

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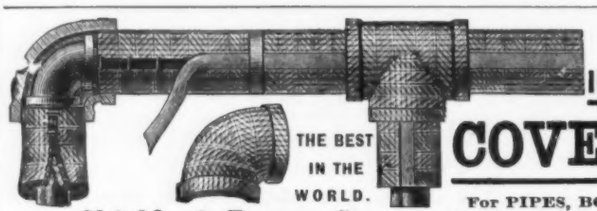

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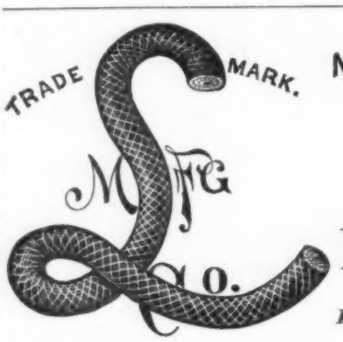

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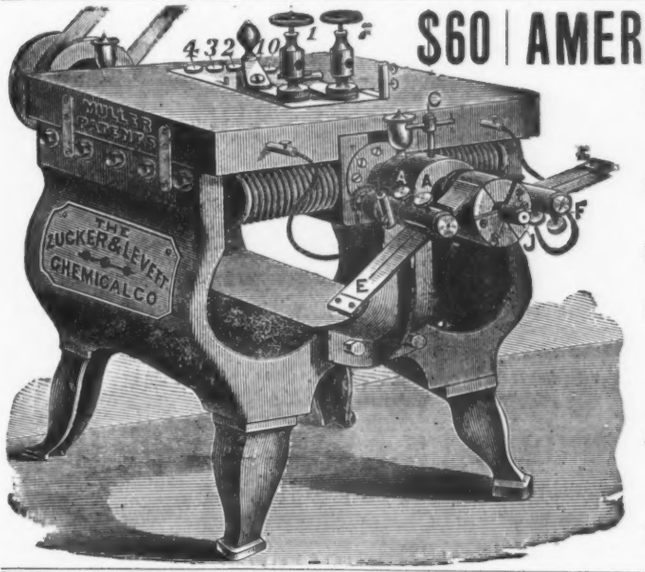

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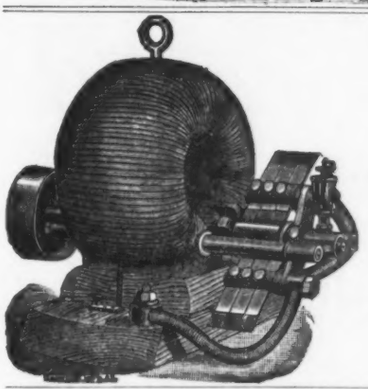

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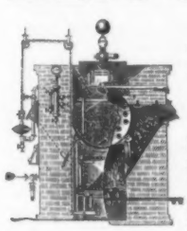

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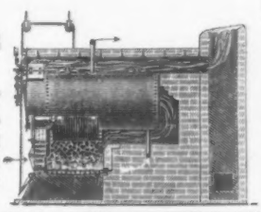

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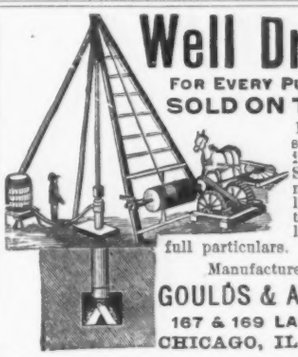

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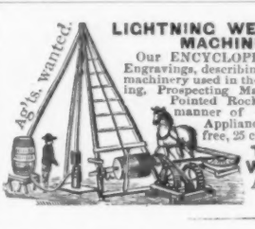

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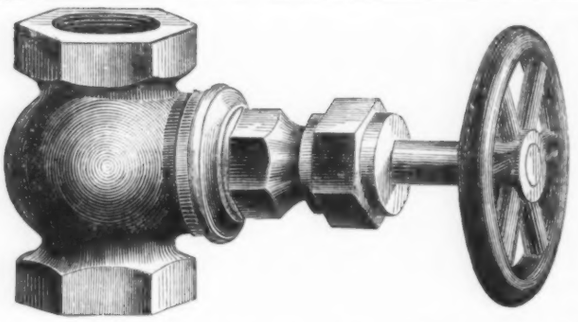

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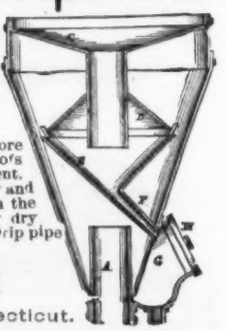

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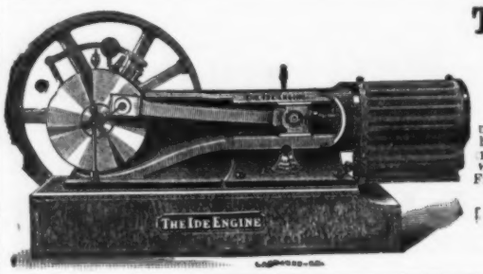

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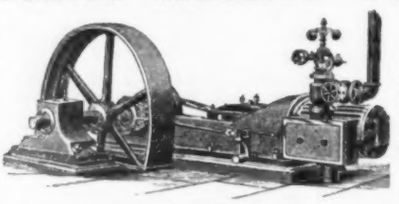

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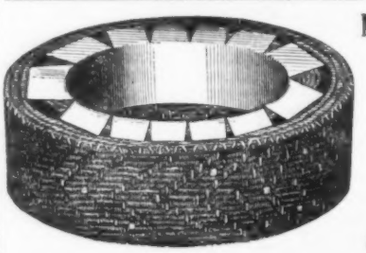

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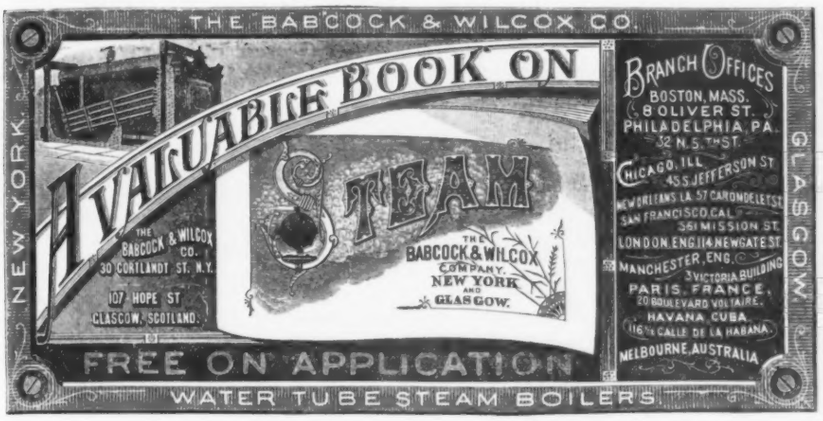

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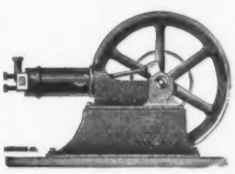

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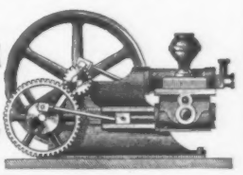

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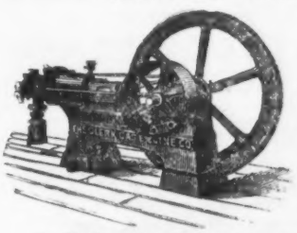

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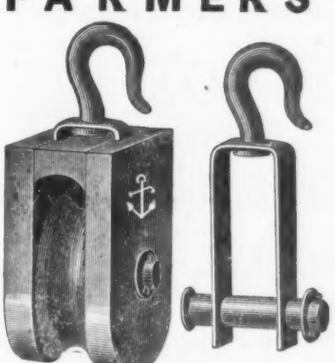

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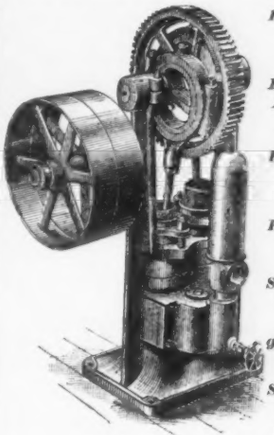

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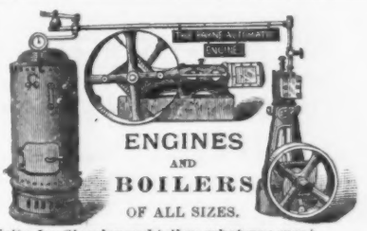

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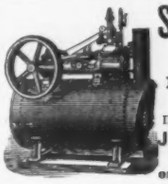

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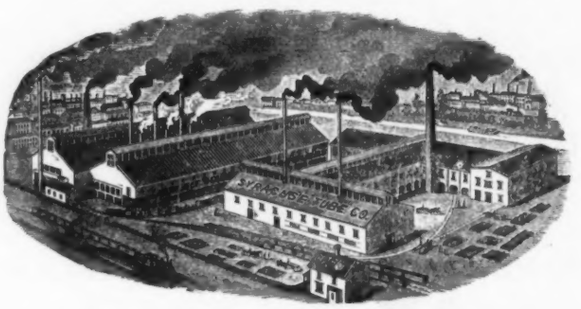

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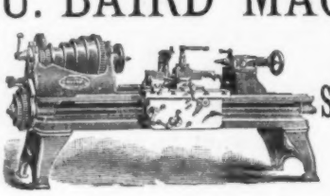

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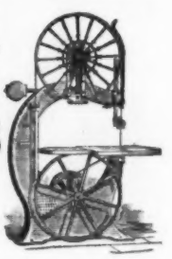

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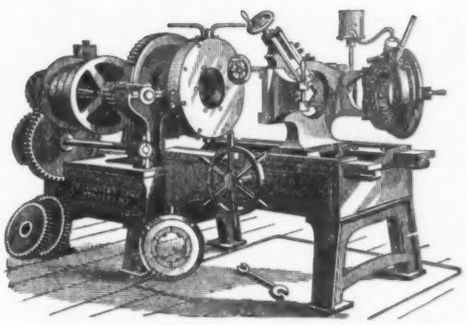

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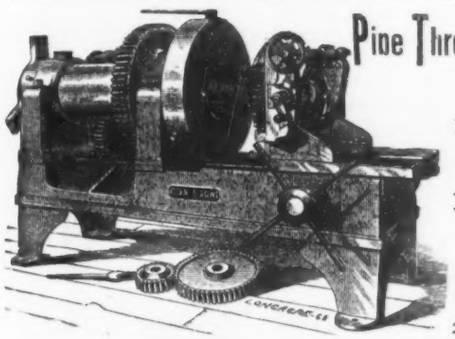

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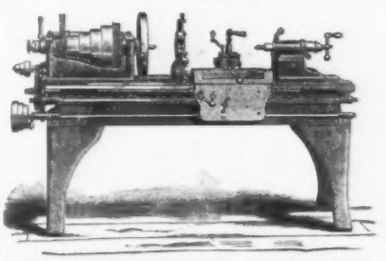

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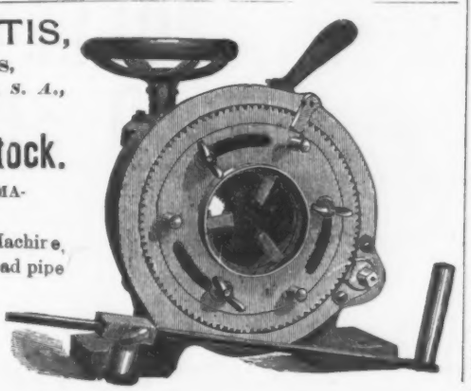

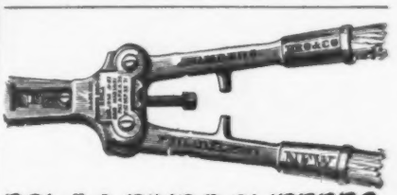

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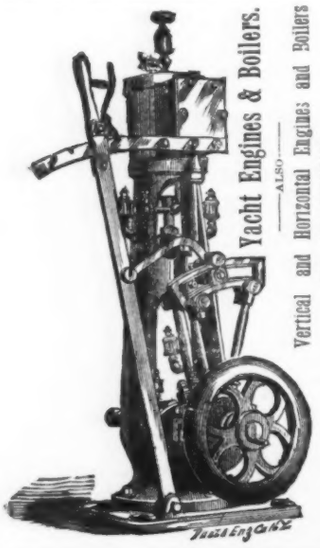

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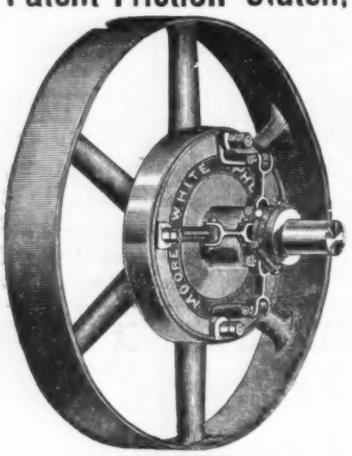

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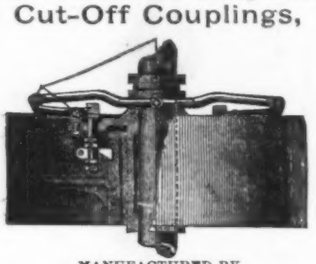

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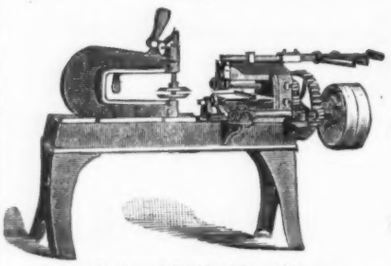

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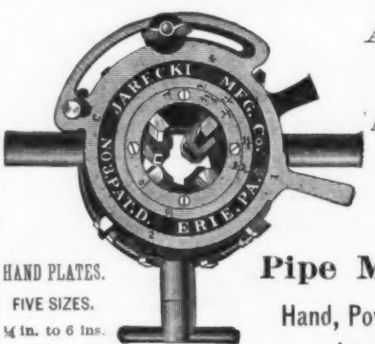

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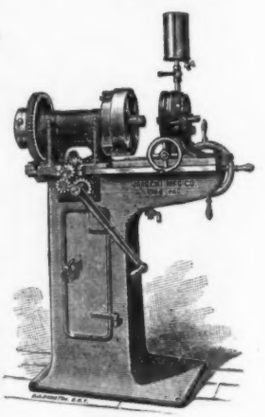

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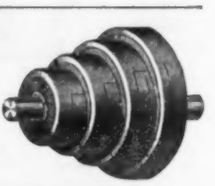

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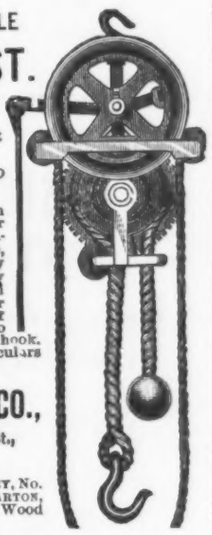

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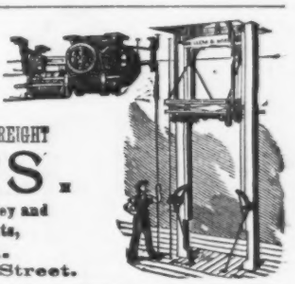

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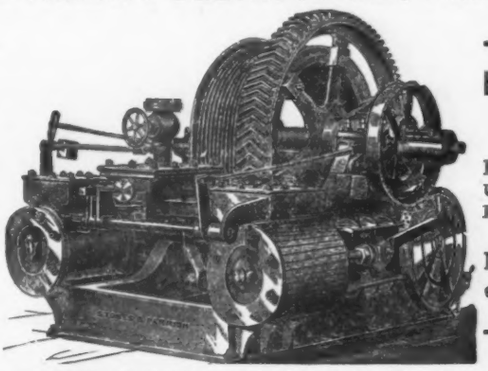

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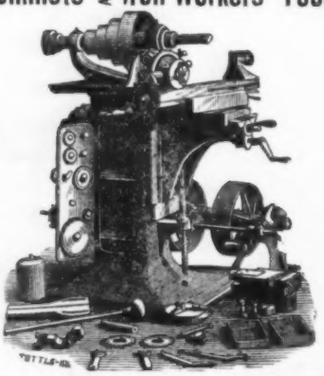

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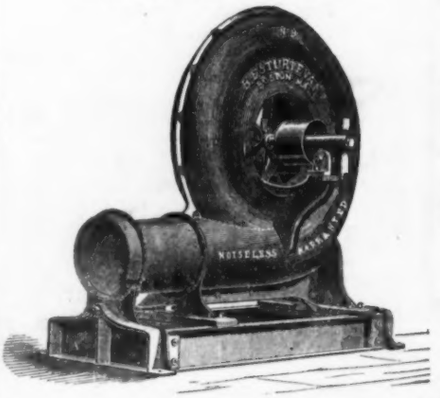

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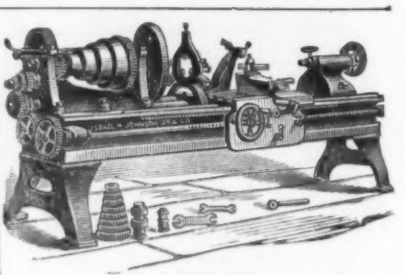

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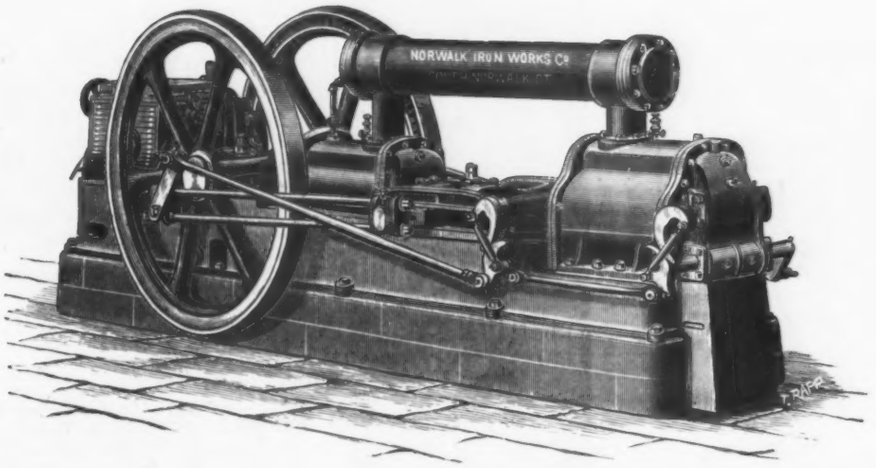

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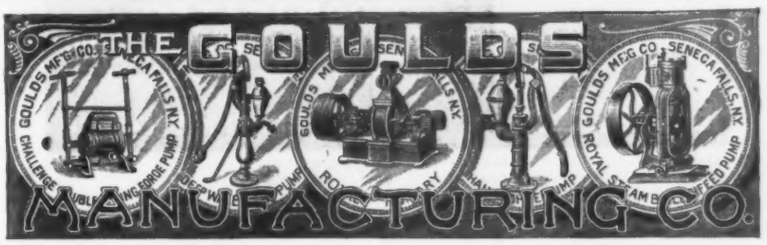

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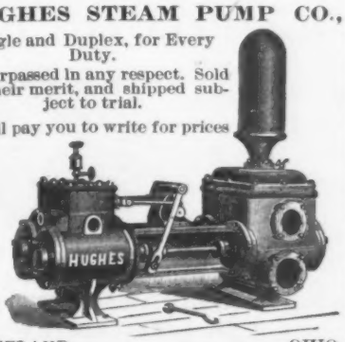

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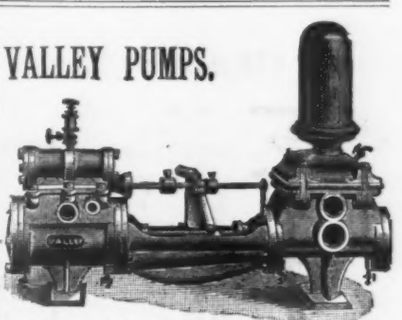

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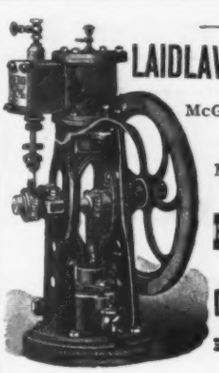

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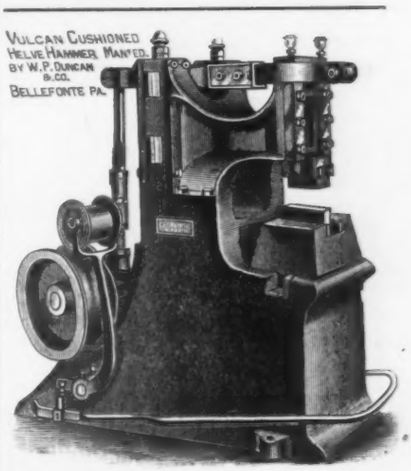

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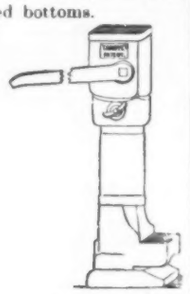

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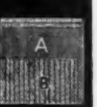

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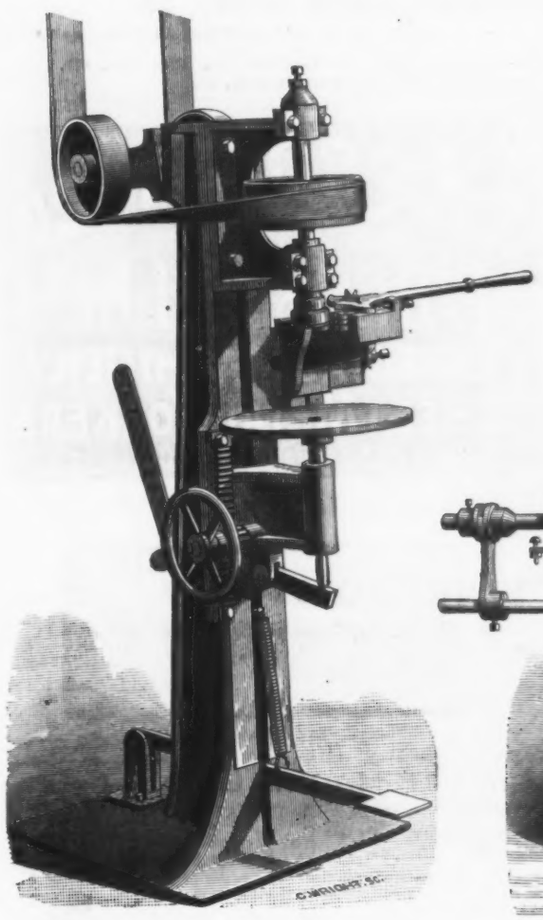

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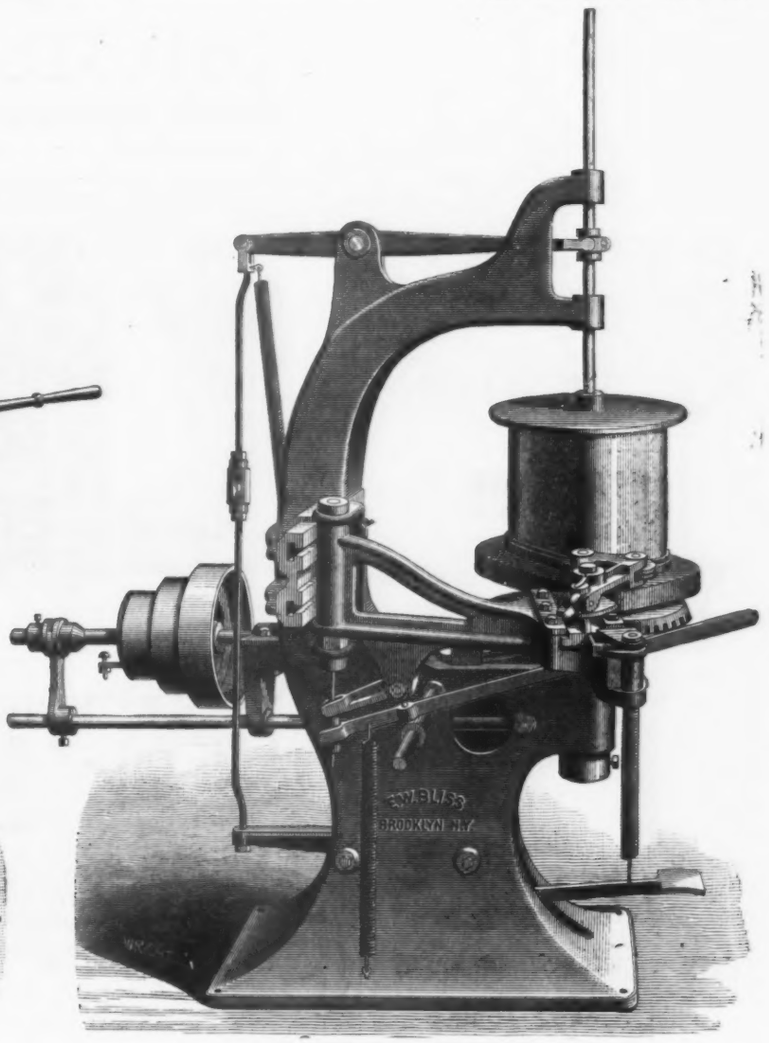

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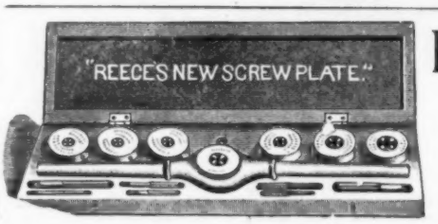

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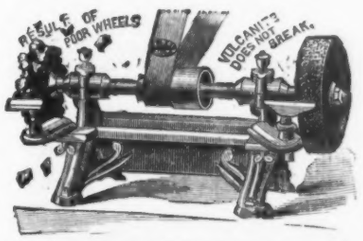

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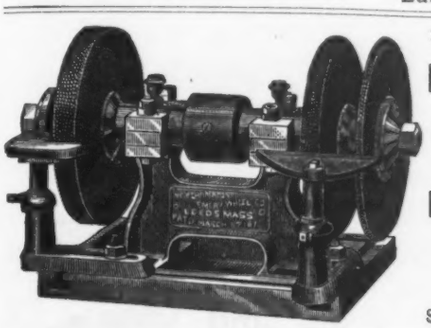

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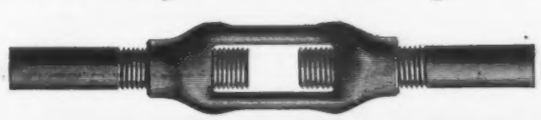
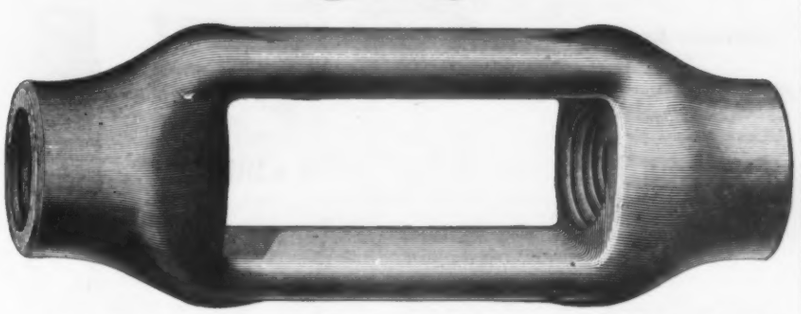
BEST.  CHEAPEST



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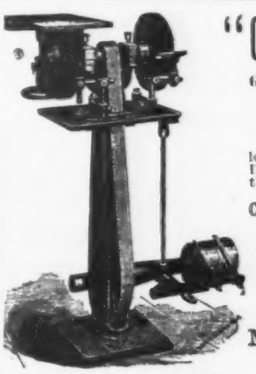

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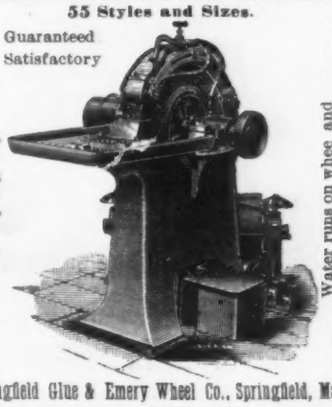

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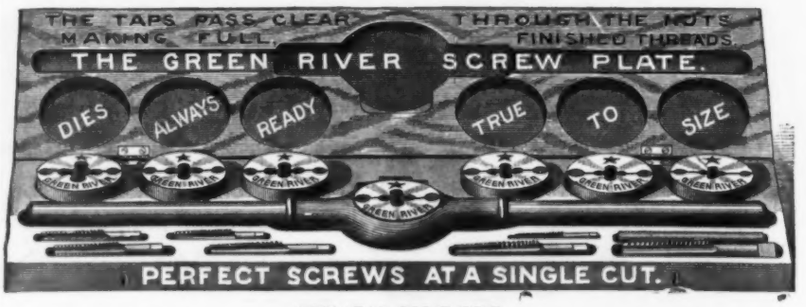

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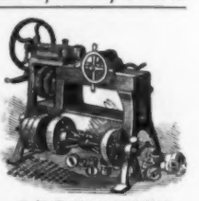
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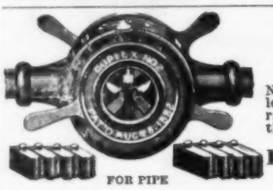
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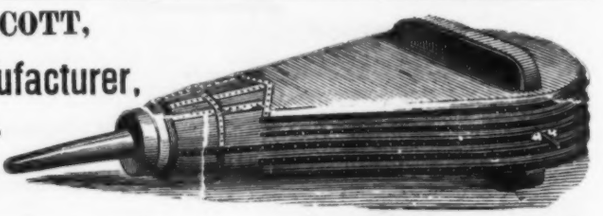

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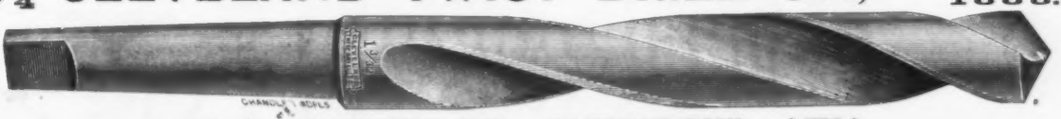

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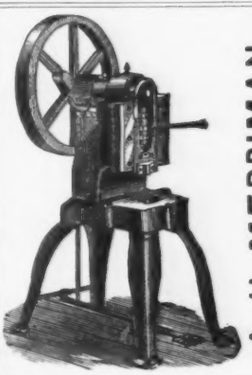

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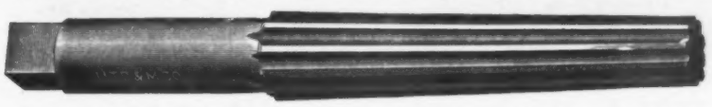

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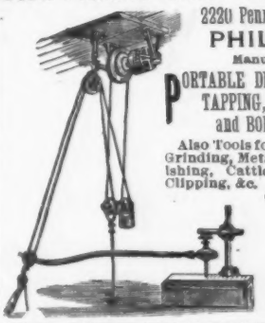

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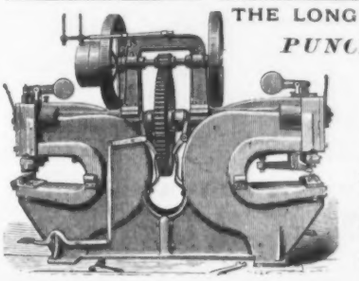

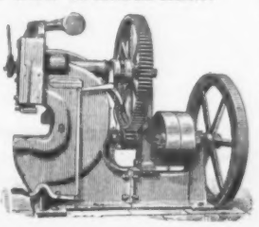

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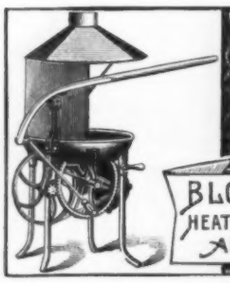

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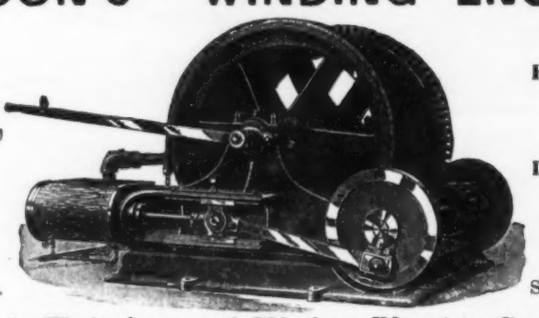

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At less than half first cost, a Delamater Duplex 16 in. x 36 in. Compressor, in thoroughly good working order. Address
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ENGINE LATHES, Turret Lathes, B. G. Chucking Lathes, Turning Lathes for finishing Irregular Forms in Brass, Heavy Spinning Lathes, Automatic Drills for Hardware Mfrs., Shapers, Planers and other Iron-working Tools.

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THE HENDEY MACHINE CO.,

Torrington, Conn.

SECOND HAND

MACHINISTS' TOOLS.

1 Planer, planes 22 ft. long, 48 x 38, double heads on
1 Planer, planes 12 ft. 36 in. x 34 in. [cross head
1 7-ft. 28 x 28 Planer.
1 5 ft. 24 in. x 24 in. Planer.
1 18-ft. bed, 50 in., Engine Lathe.
2 8-ft. 18 in., Engine Lathe.
1 5 ft. bed 12 in. Reed Lathe.
2 Monitor Head Lathes.
1 9-ft. bed, 16 in., Engine Lathe.
1 Horizontal Boring Mill, 48 in. swing.
1 No. 1 Pratt & W. Screw Machine, Wire Feed.
1 No. 2 Farrell Power Press.
1 6-spindle Pratt & Whitney Drill.
1 2-spindle Edging Machine.
1 6-in. Crank Shaper, A1 order.
Send for List of Second-hand Tools.

New York Machinery Depot,

Bridge Store No. 16, on Frankfort st., New York.

FOR SALE.

VERTICAL ENGINES,

One 32 in. by 32 in.
One 15 in. by 11½ in.
Cylinder Boilers
Steam Pumps.

For further particulars apply to

DAN'L W. RICHARDS & CO.,
88 to 96 Mangin St., New York.

W. P. DAVIS

North Bloomfield, N. Y.

HAS FOR SALE

50 Key Seating Machines.
50 Standard 20-in. Drills.
1 Engine Lathe, each 18 in., 20 in, and 22 in.
1 Shaper, each 15 in., 20 in and 24 in.
1 38 and 1 50 H. P. Automatic Engine.
1 each 10, 15. 20, 25, 30, 40, and 50 H. P. Boilers.
All the above are new and first-class.
The following second-hand Engine and Boilers:
1 each, 25, 35, 60 and 8 H. P. Horizontal Boilers and
1 35 H. P. Engine, All the above in No. 1 order.

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Blowing Engine, new and first-class; Steam Cylinder 36 in. diam.; Blowing Cylinder 84 in. diam.; Stroke 48 in.; Weight 71 tons. Can ship in ten days' notice.

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Successors to Cuyahoga Steam Furnace Co.,
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SHEARS, ENGINES, BOILERS, FLOOR PLATES, &c.

One Heavy Plate Shear, 48-inch throat.
" Large Lever Shear. Cutting old rails.
" Small " " " scrap iron.
" Rotary " " " strips 5-16 in.
" Large Upright " " tops and bot'ms 1 in
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" Upright High-Pressure Engine, 16 x 18 in.
Two Winslow Squeezers. One new.
One Dudgeon Steam Hammer, 18 in. diam., 40 in. stroke.
Upright Tubular Boilers, 15 ft. long, 60 in. diam.
Cylinder Boilers, 20-24 ft. long, 30 in. diam.
Stacks, 30 to 50 ft. long, 30 in. diam.
One Crane (Iron) about 5 tons.
One Crane about 5 tons capacity.
Boshes, Steam Piping (cast and wrought Iron).
Blast Pipe, Cinder Buggies, Tanks, &c.
Beam Engine, 14 x 30 in.
The above are in good order, and for sale in lots to suit for immediate delivery.

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DROPS AND LIFTERS

bought, sold, or taken in exchange for new.

BEECHER & PECK,
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ROLL TURNING LATHES BLOWER AND ENGINE.

One Single Roll Turning Lathe, 18 in. Roll
" Upright Engine, 6½ in. x 17 in.
" Root Blower No. 7.
All in good order.

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GOOD SECOND HAND TOOLS.

I want to buy for cash good second-hand

LATHES, PLANERS AND DRILLS.

Address "A. B. S.,"

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ROLLING AND NAIL MILL MACHINERY FOR SALE.

Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).
One 16-in. Nail Plate Train of three stands of rolls, with pinions, tools and fixtures complete.
One 18-in Muck or Forge Train, two stands of rolls.
One 500-Horse-Power Corliss Beam Engine, with condenser, pumps and other connections.
70 Nail Machines.
3 Spike "
3 Guillotine or Plate Shears.
15 Grindstones, fixtures and countershafts.
43 Gould's Patent Nail Feeders.
About 600 ft. Shafting with pulleys; also Lathes, Planers, Drills and all necessary tools to do repairs.
All in perfect running order and will be sold cheap, as a whole or in parts. Above now located at Weymouth Iron Works, East Weymouth, Mass.
Enquire of
J. F. ROGERS 101 Milk St., Boston, Mass,
or J. M. LEONARD, Somerset, Mass.

FOR SALE.

ONE OF GEORGE H. CORLISS'S UPRIGHT ROLLING MILL ENGINES;

Cylinder, 32 in. x 60 in.; Shaft, 17 in. Diameter, with fly wheel of 25 tons weight and 20-foot diameter fitted to the shaft; *also* 1 Berriman Heater, 4 feet diameter, 12 feet high, with steam and exhaust pipe and fittings for same; *also* 2 Sturtevant Steel Pressure Blowers, 6 ft. diameter; Outlet, 20 x 24, with 14 in. pulley on each side for 12-in. belt. Address

NATHAN SENHAM, Hartford, Conn.

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ONE SCREW PLANER.—14-foot Bed; will take in 4 feet between uprights.

Address
SHICKLE, HARRISON & HOWARD IRON CO.
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FOR SALE. A Brown (Fitchburg, Mass.) Engine 20 in. x 48 in., Corliss 18 in. x 42 in.

FRANK McSWEGAN & SONS,
Bridge Store, Dover St. and Franklin Sq., New York.

COIL-BOILERS FOR THE UNITED STATES NAVY.—NAVY DEPARTMENT, Washington, D. C., August 2, 1888.—The Navy Department, having in view the possible decrease in weight of machinery in vessels of war by the use of tubulous, sectional or coil-boilers, has determined to adopt such boilers, if suitable can be found, for a portion of the steam-power of one or more of the vessels about to be built. To this end manufacturers who wish to offer such boilers for use by the Department are hereby invited to furnish plans of the same, adapted to an armored coast-defence vessel, on or before September 15, 1888. Plans must be accompanied by certificates that boilers of the same make are or have been in successful use at sea or on shore. Plans showing the space in the vessel available for boilers, particulars of the duty required and other information, may be obtained upon application to the Bureau of Steam Engineering. The boiler which appears to the Department, after investigation, to be the best for the purpose, taking into account the evaporative efficiency, the dryness of the steam, the weight of the boiler, the weight of the water contained, the accessibility for repairs, the ease of making repairs, the simplicity and interchangeability of the parts, the space occupied, the ease of firing and of regulating the feed, the suitability for working in battery, the capability of long-continued steaming without cleaning, and the durability, will be adopted in the coast-defense vessel above mentioned, provided that the price, which must be stated when the plans are submitted, is satisfactory to the Navy Department. Such boilers as appear to possess merit will be tested by the Navy Department, if the manufacturers so desire, to determine which is the more suitable for the purpose. Manufacturers who wish their boilers to be tested must furnish a boiler of the type of one of those proposed for the vessel and prepare it for test, either at their own works or at such place as may be arranged with the Department. The expense of the test of the accepted boiler will be borne by the Navy Department, and the cost of the fuel used in the test of the second best will also be borne by the Navy Department. All other tests must be at the expense of the parties offering boilers for competition.

WILLIAM C. WHITNEY,
Secretary of the Navy.

FOR SALE, CHEAP, Wire Machines.—6 second-hand Wire Nail Machines, 2 Rattlers or Polishers, 1 Emery Wheel, stand and wheels complete; 1 Engine Lathe, nearly new, for making dyes, and in first-class condition. Have been run about eight months, and of the latest pattern. The machines will cut from ⅛ in. to 3½ in. nail. Very strong and durable machines, and of latest improved style. For particulars please refer to me. All in running order. GEO. A. CARTER, Box 434, Brockton, Mass.

FOR SALE AT LOW PRICES.—1 each, 12 and 16-in. Turret Lathe, Warner & Swazey, good order. 1 2-inch Automatic Turret Lathe, Freck, new, $150. 1 2-Spindle Drill Press with Adjustable Spindles, $50. 1 No. 2 Garran Hand Feed Miller, good order, $75. 1 Power Punch, punches ⅛ x ⅜ new, $175. 2 Large Screw Punches, good order and cheap. 1 3-Spindle Horizontal Nut Tapper, good order, $75. 1 36-inch Car Wheel Borer, good order, $250. 1 36-inch Pulley Turning Lathe. 1 Seymour Pulley Balancing Machine. A large assortment of Lathes, Planers, Shapers, etc. New and second-hand. Send for catalogue.
W. H. ROBERTSON, 51 So. Canal St., Chicago, Ill.

FOR SALE—IMMEDIATE DELIVERY.

One new Star Tool Co.'s Cutting-off Machine, capable of cutting 5-in stock.
Two new Star Tool Co.'s Traverse Drills.
Twenty new modern Lathe and Planer Chucks, popular makes, all sizes, at large discounts from manufacturers prices.

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ENGINES AND BOILERS.

One 18 x 48 Horizontal Corliss Engine.
" 16 x 32 " Wright "
" Copeland & Bacon Double Hoisting Engine, 8½ x 10.
Two Horizontal Tubular Boilers, 80 H.-P.
One No. 6 Knowles Steam Pump.
" Worthington Duplex " 7½ x 4½ x 10.

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Four 75 Horse-Power Second-Hand Boilers, with Hartford Steam Boiler Insurance Company certificate to carry 80 pounds. Price $350 each.

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One 50 H.-P. second-hand Ide Automatic Engine, good order. Price $500.
One 80 H. P. new Ide Automatic Engine with Corliss style cross head. Price $1000.

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80 H.-P. Vertical Engine; first-class order.
20, 30 and 50 H.-P. Horizontal. " "
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Double 6-in. Hoisting Engine and Boiler.
Single 8-in. Hoisting Engine and Boiler; first-class order.
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33 x 11 ft. Planer. " "
25 in. x 12 ft. Screw-Cutting Lathe; first-class order.
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15 in x 6 ft. Screw-Cutting Lathe; new.
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Engine Boiler, Rock Drills, Chain Elevator and Conveyers.

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Full information given regarding the many advantages offered by our city as a manufacturing centre, among them being 16 lines of railroads; coal at 50 cents per ton, &c., &c,

Address,
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FOR RENT.

Three-story factory, with or without power, situated in Philadelphia, 78 x 100 ft. Within one block of Penna. R. R. Depot, one block of B. and Ohio Depot, three blocks of Delaware, three blocks of European Steamers, half mile of Southern and Eastern Steamers. An excellent site for tinware or kindred business offering unexcelled advantages for shipments and cheap labor. Address "X. Y. Z.," Lock Box 1086, Philadelphia.

FOR RENT.

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With new Dam and Flood Gates,

Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.
For particulars, address
J. B. CARTER, Hardware Manfg. Agent,
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75 Tons Stove Plate.
100 Tons Machinery Iron.
Also Old Iron and Metals of all kinds.

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FOR SALE—40-horse Tubular Boiler and Engine, second hand, in good running order, Apply
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FOR SALE.—The Northwestern Foundry. Largest and best in Minneapolis. Located on half of block 106 (330 x 165 ft.) and part of block 105, corners Third street, Ninth and Tenth aves., South. Main building (200 x 60 ft.) is brick with slate roof, contains four Cranes, three Cupolas, &c., complete set of Car-wheel and various patterns for Stoves, Machinery, Architectural, Ornamental, Bridge and Railroad Castings. Office also of brick, 40 x 20 feet; fire-proof vault and burglar safe in same. Will sell the entire plant, including the valuable Real Estate, Railroad Tracks, Track and Wagon Scales, &c. All the above in first-class order.
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FOR SALE.—A first-class Boiler and Sheet Iron Business in a thriving Western city of 100,000 inhabitants. Shop has been in operation eight years and has a growing and profitable business which can be largely increased. Good buildings, power tools, and first-class location on R. R. track. Good reason for selling. Correspondence and investigation from parties meaning business solicited. Address
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Valuable Manufacturing Property
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The real estate and buildings now occupied by the Watertown Steam Engine Co., of Watertown, N. Y., will be offered for sale. The property covers about four acres; has an unfailing water power on the Black River estimated at 225 h.-p. Consists of machine shop, foundry, boiler shop, blacksmith shop, store houses and tenements. The buildings are equipped with line shafting, and could be adapted to a large variety of manufacturing purposes. Moderate cost of labor, combined with low freight rates and nearness to raw material, with an abundant water power, make Watertown an exceptionally good point for manufacturing. It is essentially a manufacturing town.
The property can be divided and sold in parcels if desired,
Address WATERTOWN STEAM ENGINE CO., Watertown, N. Y.

FOR RENT!!! "Water Power," "Water Power."—The nearest available water power to New York City at Boonton, New Jersey. Constant all the year around! This magnificent water power will be leased in small or large quantities to suit the tenant. Suitable buildings erected for all kinds of manufacturing purposes. Splendid shipping facilities! On the line of railroad and canal. Only 50 minutes from New York City by train. This power will be leased at a great reduction on steam. Address LORD ESTATE, 68 Wall Street

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SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

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SIXTH and CULVERT STS., CINCINNATI, OHIO.

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A Good Second-hand or New 60 in. x 60 in. PLANER, to plane from 15 to 30 feet. If Second-hand, must be of modern design and in first-class order.

FOSDICK & PLUCKER,
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Tract of 320 acres near Cumberland, Md. 2½ miles down grade to Pittsburgh and Connellsville and Penna. R. R's. Coal on property. Opening showing quality and quantity of Clay and Coal. For samples, information or inspection of property apply to

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Agents and Traveling Men to sell the most complete stock of Boilers and Engines, Drive Well Points and Tools and Pumps in America.

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Bordentown, N. J.

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Wishing to retire from all active business, the undersigned offer for sale their valuable and thoroughly established business. The stock is clean and well selected. Waverly, New York, is a growing place, with considerable manufacturing, and surrounded by a good farming country; has good water, gas works and sewers, also five railroads radiating from it. The location of the store building is central, with every convenience, including hydraulic elevator, &c. The business has been conducted successfully as wholesale and retail; can be continued as we have conducted it, or else we can soon reduce the stock, and it can be conducted as a retail alone.
In negotiating sale, reference given and required.
MERRIAM BROS., Waverly, N. Y.

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An old established Hardware Business doing the leading wholesale and retail trade in one of the best towns in Minnesota. This is an opportunity seldom offered. Reason for sale, death of proprietor. Address
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FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock, Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85 , wo stories. Warehouse, 22 x 30, two stories in rear. Does a large and paying business, which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade.
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Clean stock of Hardware; will invoice about $7000; in the best city in Central Nebraska; population, 15,000; terms, one-half down, balance to suit purchaser. This is one of the finest arranged stores in the State, and is so neatly constructed its attraction will draw trade. Correspondence solicited. Address
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Hardware Specialties to manufacture on contract. Good Patents in our line bought or controlled on Royalty. Local Agents and Canvassers wanted everywhere for our Specialties. Address all correspondence to

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STEEL PLATE.

For Sale, a lot of Steel Plate 5-16 in. to ¼ in thick up to 108 in. wide; will shear in size and shapes to suit.

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Successors to
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DIXON'S Traction Belt Grease and Leather Preservative contains no rosin or gum of any kind. It preserves the leather and prevents the slipping of the belt. A trial will convince the most skeptical.

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One-quarter interest in a manufacturing company for sale very low.

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CAST STEEL.

Clean stock; in lots to suit; low price; sizes as follows:

3-16, ¼, 5/16, ⅜ in. Square.
¼, 7-16 and ½ in. Round.
¼, 5-16, 7-16 and ½ in. Octagon.
⅛x1¼, 5-32x⅝, 3-16x¾, ¼x⅝, 5/16x⅜.
Also Sheet Steel, spring temper, 10 and 14 gauge.

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One Second-Hand Daniels Wood Surface Planer. All in good order. Nearly new.

34-inch wide between uprights, 12-foot table, with 6-foot extension.

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154 ACRES and 46 PERCHES,

more or less. The improvements consist of a two-story weather-boarded

PLANK OR LOG HOUSE,

two tenant houses with stables,

SWISS BARN, WAGON SHED,

pig sty and other outbuildings; 18 acres are woodland and 12 are meadow. The said premises contain a rich deposit of hematite iron ore, large deposits of a very high quality having been mined and taken from the same. A stream of running water flows through the tract that can be readily adapted or used for mining or farming purposes. The property also abounds with fruit trees of various kinds, and deposits of clay suitable for brick manufacture, and is situate about one mile from Evansville station on the Berks and Lehigh Railroad. Sold as the estate of Jacob Baily, late of Maidencreek Township, deceased. Sale to commence at one o'clock in the afternoon, when due attendance will be given and terms of sale made known by

JACOB D. HOFFMAN, Executor.

ADAM H. SCHMEHL, Attorney.

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Will sell, exchange or rent the following machinery, and warrant them A1:

13 x 36 Double Fitchburg Engine.
10 x 20 New Haven Automatic "
10 x 12 Erie City make "
10 x 10 Heald & Morris "
10 H.-P. Porter Mfg. Co. "
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A number of small Upright and Horizontal Engines.
Upright Boilers 8, 10, 15 and 20 H.-P.
Horizontal Boilers 15, 20, 30 and 40 H.-P.
Also two 5 x 15 ft. modern Boilers to arrive; also lot of Tanks, &c.
7 Tumbling Barrels, 20 in. diam., cast head, wro't shell 36 to 54 in. long.
Complete outfit modern wood-working machines, also Wheel and Wood-Bending Tools, Shafting Hangers, Pulleys, Hoisting Engines, &c.

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AN EXCELLENT OPPORTUNITY.

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The rag, iron and metal business sucessfully conducted by S. Simons & Son since 1870 at Detroit, Mich. Owing to the death of Mr. S. Simons and the inability of the surviving partner to give the necessary attention, this offer is made. The property used for that business consists of large yard Nos. 365 to 371 Atwater St, having best R. R. facilities, a massive four-story stone and brick building and other buildings and everything necessary to conduct the business, constituting the best equipped plant in the country for that business, together with the good will of a large established trade. Will be sold for the lowest value of the property, or a suitable partner, a smart business man having a good reputation and knowledge of the business, will be accepted. For particulars address to

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Bit Brace Chuck Patent for Sale.

Entirely new principle. Adjusts itself instantly to all sizes of Bits, and holds them securely. Can be applied to any good brace. Will send model to interested parties. None but principals dealt with. Address,

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WANTED.—Immediately, one second-hand iron ladle 8000 pounds capacity, in good condition.

Address at once, stating price and time of delivery,

THE WASHINGTON ARCHITECTURAL IRON AND BRIDGE WORKS,
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TO LET.

Office and Sample Room.
One half of Basement. All of Subcellar
HUMASON & BECKLEY MFG. CO.,
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FOR SALE.—Hardware Store in town of 1000 inhabitants, doing good business; $2500 stock. Good reason for selling.

Inquire of
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AN OLD ESTABLISHED HOUSE wants exclusive control of Hardware Specialties, Building Hardware, Tools, &c., for Philadelphia and vicinity. Address,

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Address, THOMPSON C. GILL & CO.,
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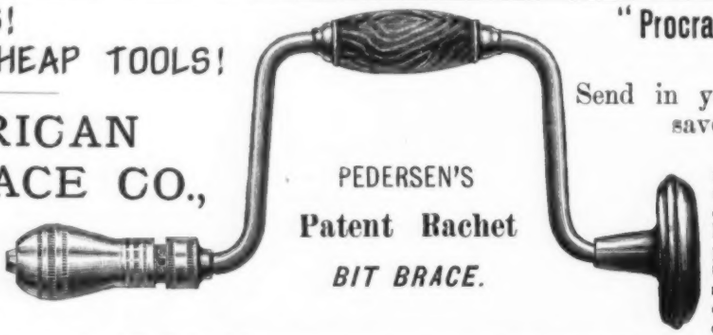

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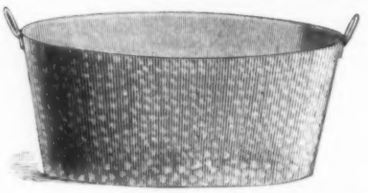

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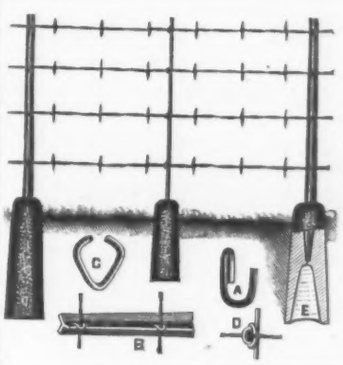

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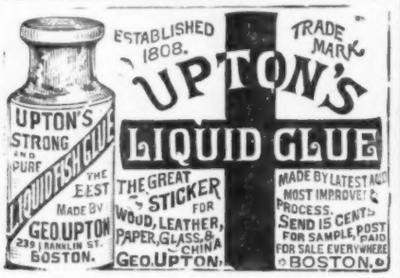

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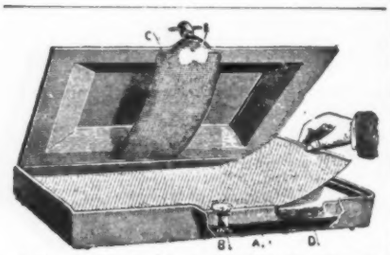

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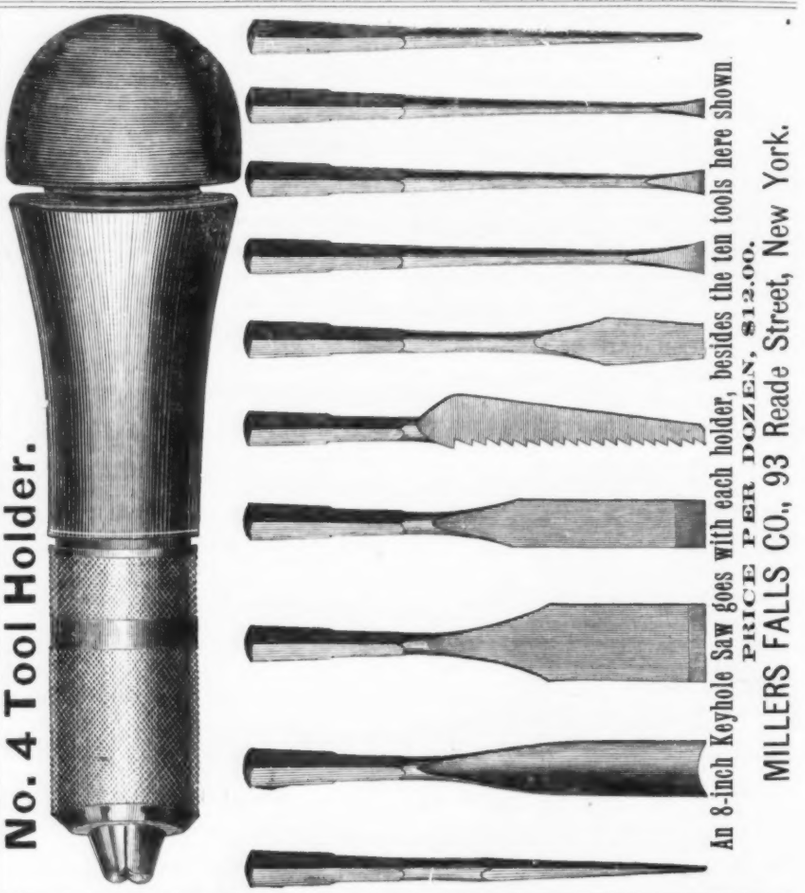

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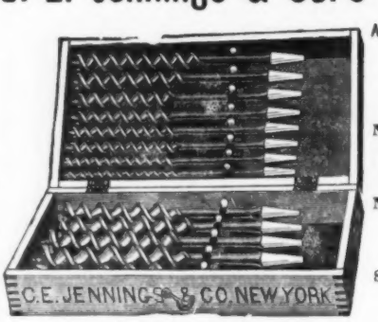

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WITH YALE CORRUGATED KEY LOCKS.

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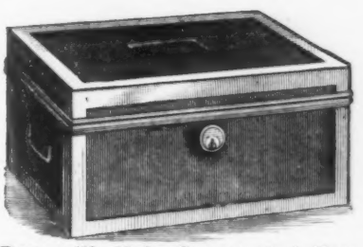
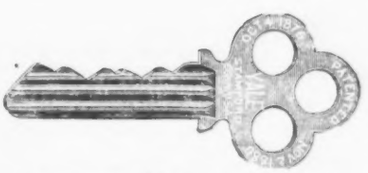
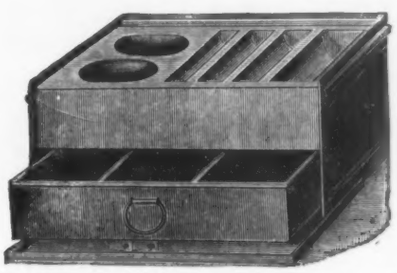


Box, with Yale Corrugated Key Lock.



Full Size of Yale Corrugated Key.



Open position, showing Cover and Front underneath.

MPROVED CASH BOX,

With Coin Till and Bill Drawer, With Yale Combination Lock.

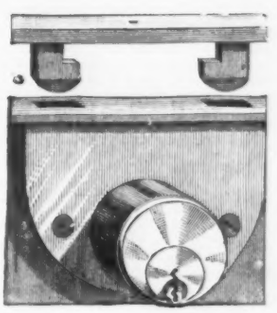


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Fig. 130.

Fig. 70.

or wherever it is desired to raise a large quantity of water by **hand power.**

The pump has large valves (accessible by hand) and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

Capacity from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced.

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Fig. 209.

Fig. 381.

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FIG. 114.

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FIG. 114 REPRESENTS OUR

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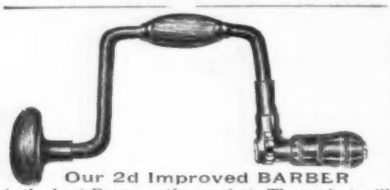

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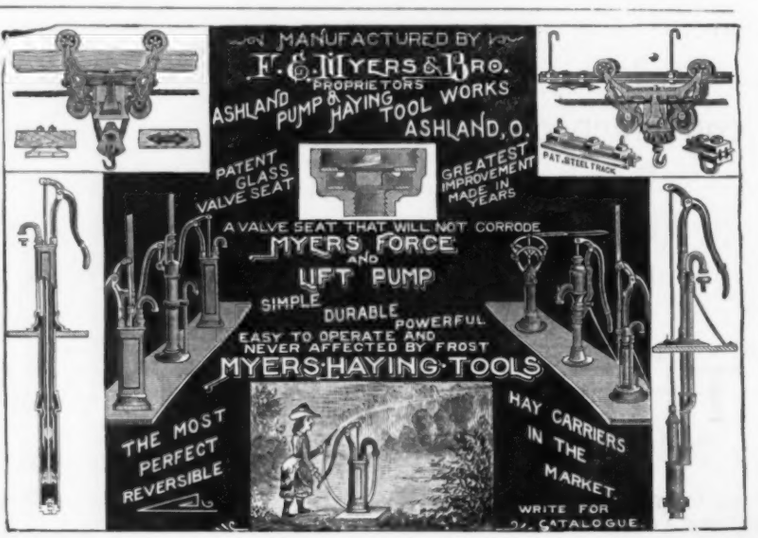

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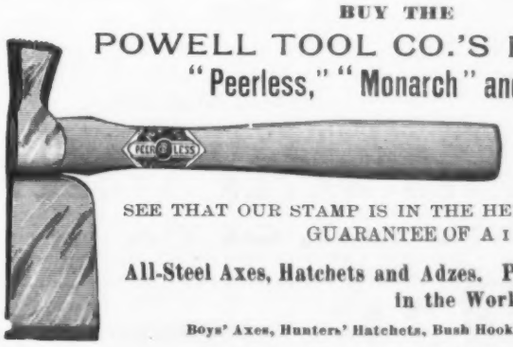

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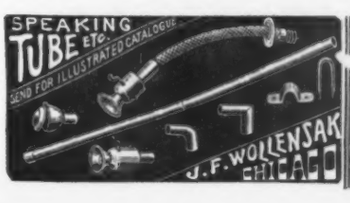

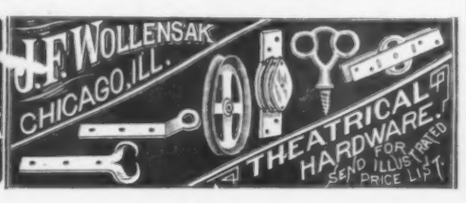

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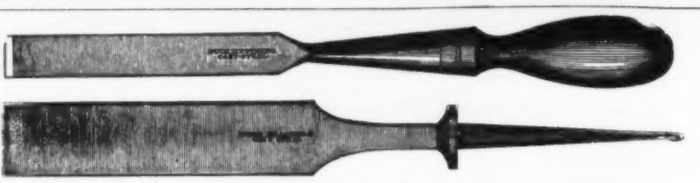

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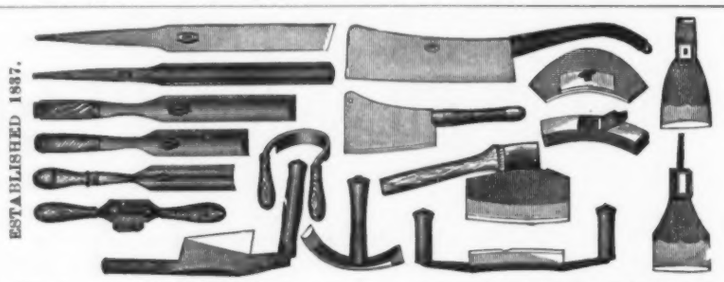

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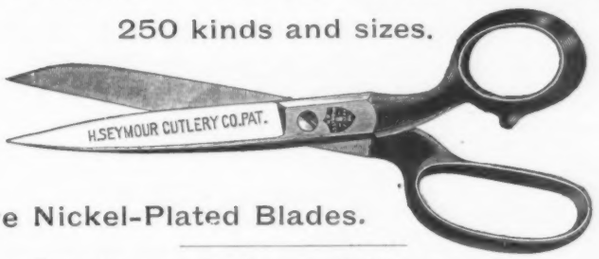

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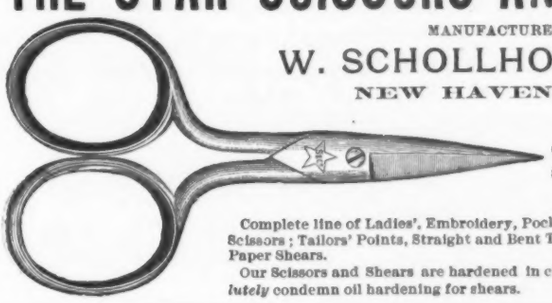

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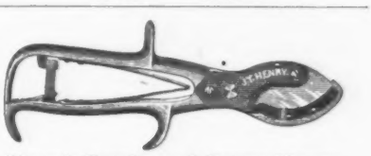

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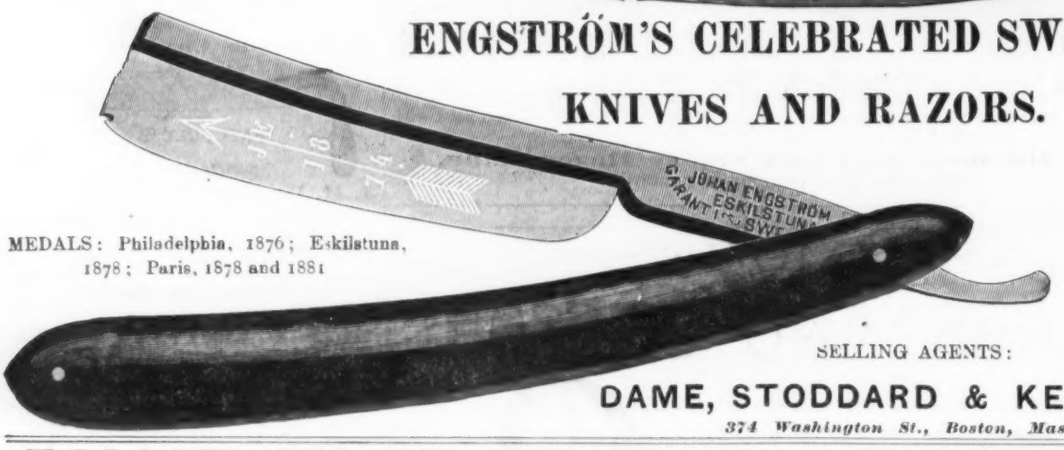

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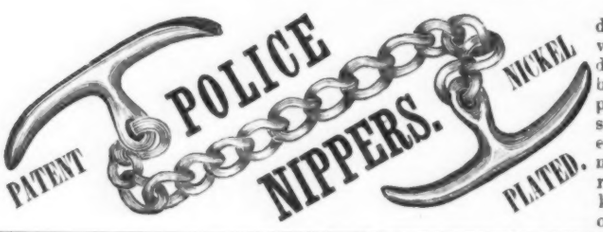
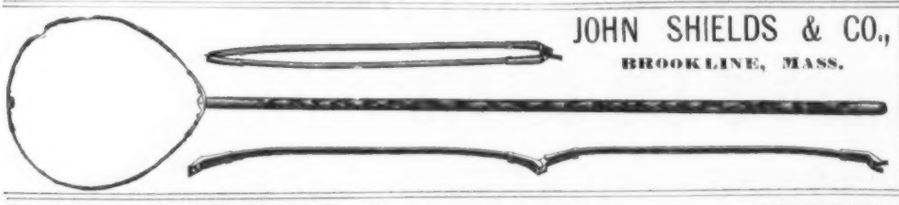


The attention of the Hardware Trade is called to the decision rendered in my favor in U. S. Circuit Court, So. Dist. of N. Y., Baldwin *vs* J. G. Conway Co., Limited, *et als*, wherein I prosecuted the defendants for selling Police Chain Twisters or Nippers, manufactured by Bean, of Boston, which are proved to be an infringement on my patent. We therefore warn the Trade and public generally against selling or using such Police Chain Nippers or Twisters, or any others, except those made by Jos. Baldwin & Co., and the improved patterns made by us exclusively for Tower & Lyon, N. Y., who have always respected our claims, and by whom our Police Chain Twisters are kept for sale. All such are stamped with our name or initials. All others are infringements. **JOS. BALDWIN & CO., Newark, N.J.**



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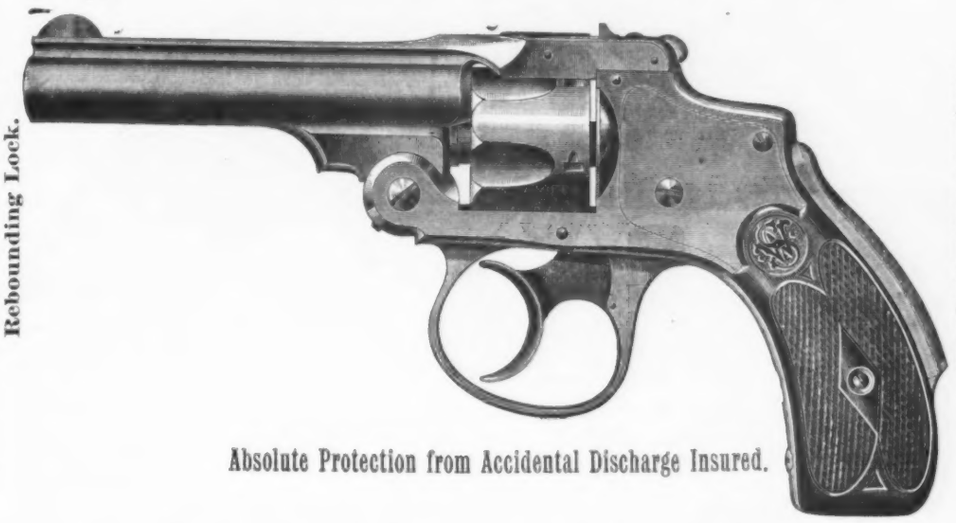

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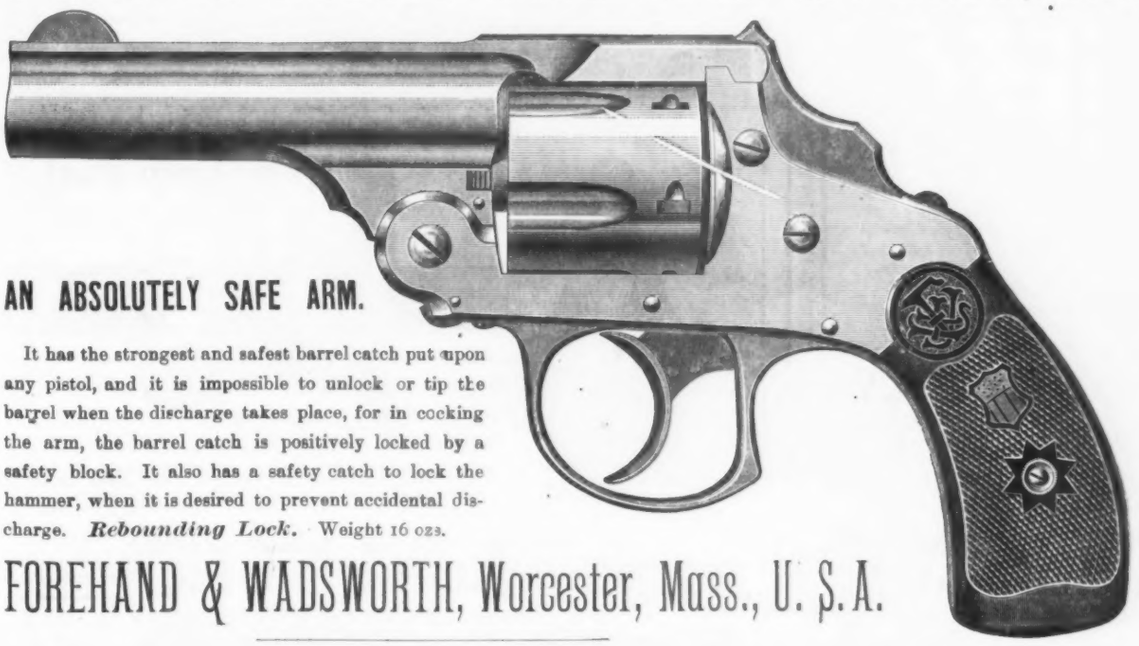

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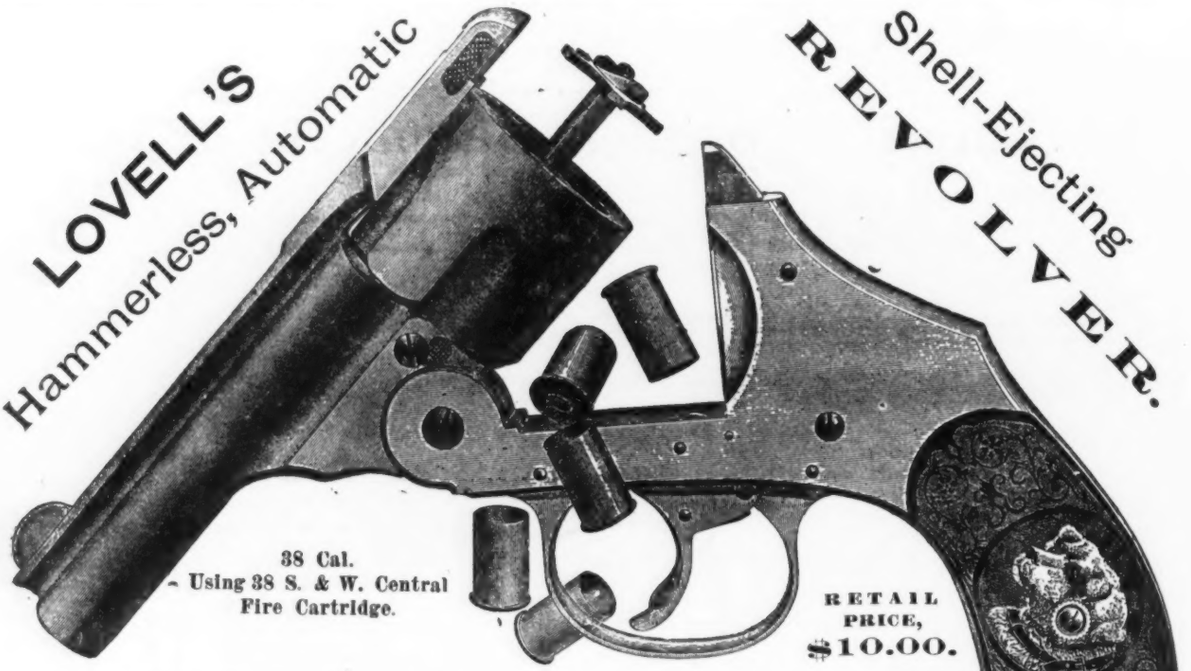

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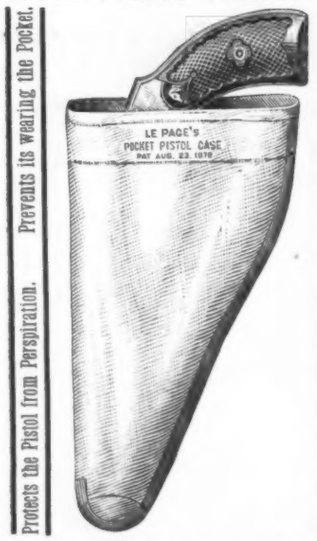

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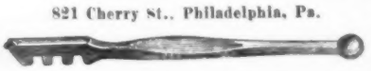

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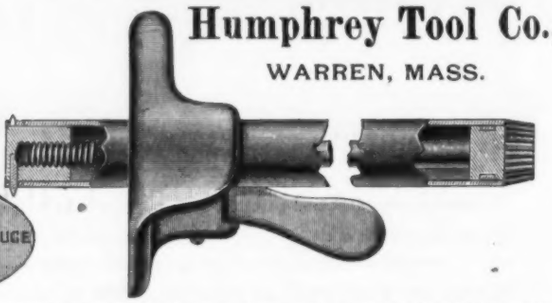

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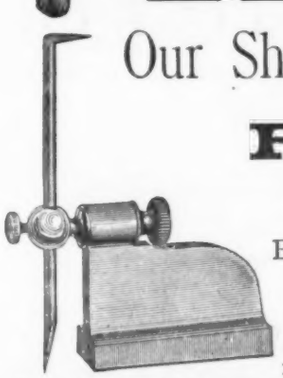

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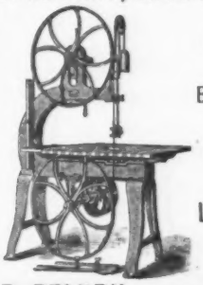

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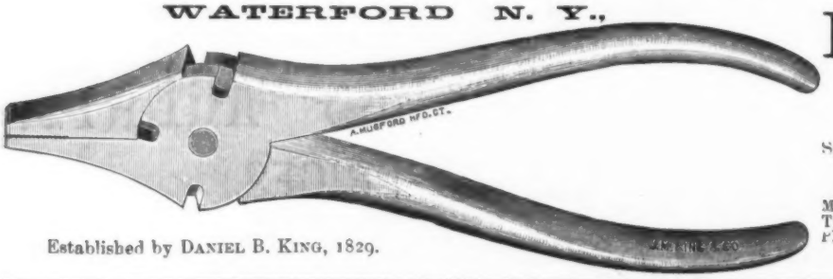

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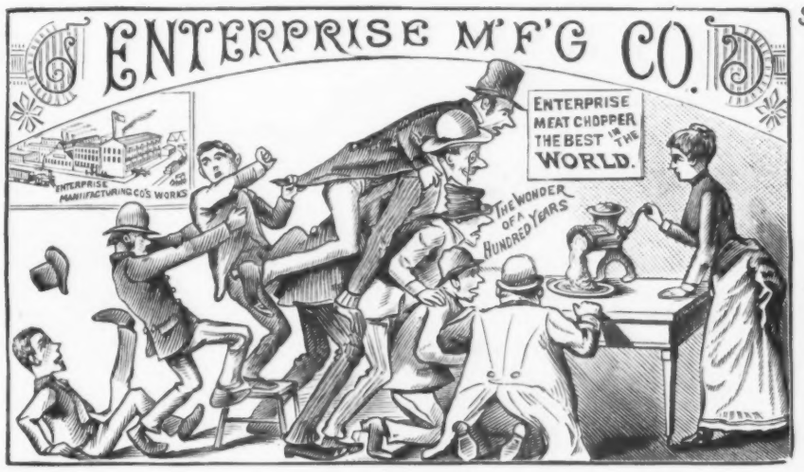

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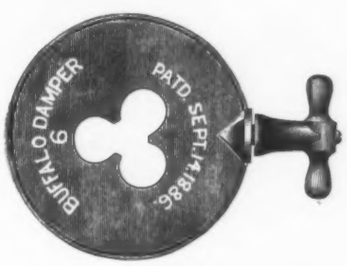

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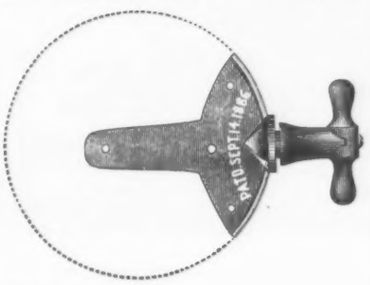

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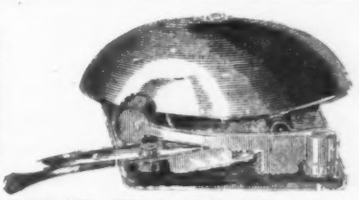

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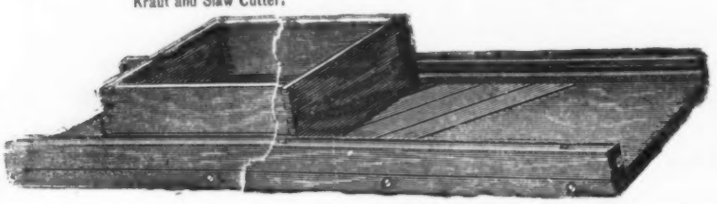

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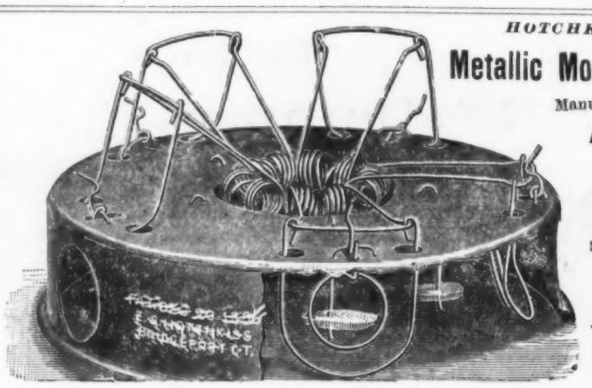

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Both Self-Setting.

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FINE SAWS A SPECIALTY.

CIRCULAR, BAND, GANG and CROSS-CUT SAWS.

Every Saw Warranted.

We were the first to introduce the best grade of Saws, among which are the

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Extra Temper.
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The best and cheapest Hand Saw in the market.

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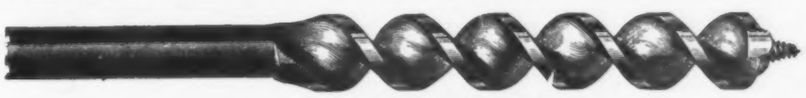

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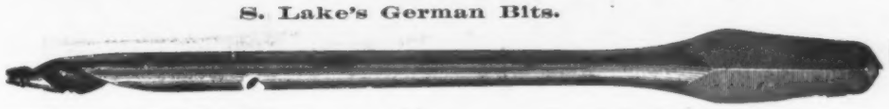

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We are the oldest and largest Faucet House in the United States, making Faucets our specialty.

This Faucet cannot be equaled in quality at the price. Packed one size in a barrel.

Average weight	or Bbl., 100 lbs.				
Nos.	0	2	4	6	8
Price	$0.75	.75	1.00	1.25	1.50
Bbls. contain about	30	27	24	15	14 doz

DISCOUNT.—Less 70%, 5% cash 10 days.

Special prices made if ordered in large quantity. Send for our fifty-page Illustrated and Descriptive Catalogue of everything in the Wood Faucet Line.

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CLARK'S CUTAWAY HARROW

supersedes the plow; beats the world; ground made into a perfect seed bed; has a seedling attachment for sowing all kinds of grain. Send for new circular with full description.

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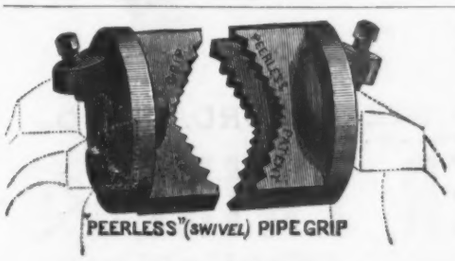

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PRICE, $2.50 and $2.75.

Instantly converts *any Vise* into a first-class *Pipe Vise*, Holding Pipes, Thimbles, Couplings, Bolts, Nut &c., in *any position*.

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Sample sent for trial as per our Circular if local dealers do not keep it.

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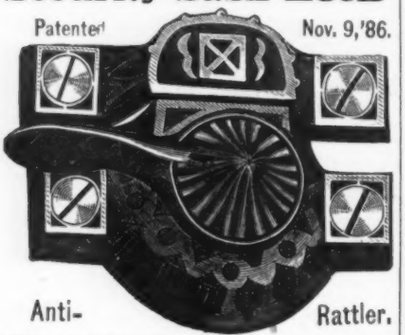

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The Rose Sash Lock.

The Rose Sash Lock, without the aid of springs, has *three distinct motions, drawing the meeting rails together, drawing the sash up and down and to the right and left*, making them perfectly tight; prevents rattling and keeps out dust and cold air. Send for circular of **Andrus Sash Balance and Rose Ventilating Sash Locks, &c.**

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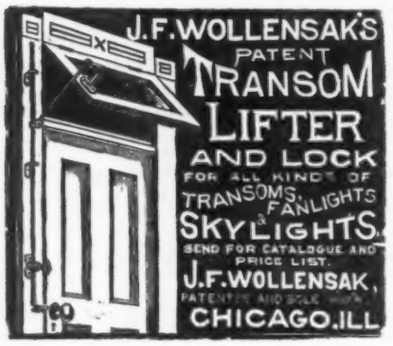

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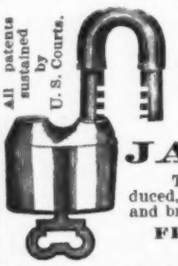

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JAIL PADLOCKS.

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FLAT STEEL KEY LOCKS A SPECIALTY.
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THE BOSTON KNOB CO.,
MANUFACTURERS OF FINE DOOR KNOBS,
No. 169 HIGH STREET,

GEO. F. WHITING, (FORT HILL SQUARE.)
President and Manager.

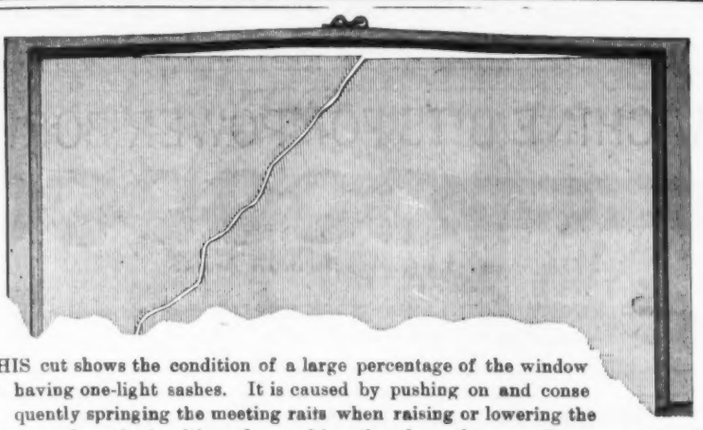
THE peculiar qualities of the Knobs made by the Boston Knob Company are, their great *strength, beauty* and *durability.*

Unlike all others, they improve in appearance, while bronze, brass or wooden knobs commence to depreciate as soon as used. The Knobs manufactured by this Company do not require cleaning or polishing.

They are furnished in a variety of colors to harmonize with the finish or decoration of rooms.

They are warranted to wear as long as any knob made. This Company use the *New Boston Spindle.*

Send to the office of the Company for prices, or to any leading wholesale hardware dealer.



THIS cut shows the condition of a large percentage of the window having one-light sashes. It is caused by pushing on and consequently springing the meeting rails when raising or lowering the windows, and results in ultimately cracking the glass, thus entailing an expense for repairs greater than the cost of applying Wigger's Patent Sash Lifters. These Sash Lifters obviate this trouble and also prove a great convenience in operating this class of windows, as previously described in the columns of *The Iron Age.*

The steadily increasing demand for these goods proves their utility, and also that both Architects and their Clients appreciate their merits, and that many Architects have specified them on buildings to be completed this fall. We shall be pleased, therefore, to send samples, sample cards and circulars (with blank space for dealers' name), on application, as the goods will be supplied exclusively through the Builders' Hardware Trade.

WRITE FOR PRICE LISTS, &c.

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ELIZABETHPORT STEAM CORDAGE CO.,
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TRADE MARK E **BINDER TWINE** TRADE MARK E

Also CORDAGE of all Kinds
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THE MORRIS PAT. SASH LOCK,

REVERSIBLE RABBETED MORTISE DOOR LOCKS. ALSO A GENERAL LINE OF BUILDERS' HARDWARE in all known finishes. Catalogues and lists furnished on application.

HALF SIZE.
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The Champion Safety Sash Locks.

THE SIDE LOCK

These locks are being received with universal and enthusiastic approval by Architects, Builders, and Hardware Dealers everywhere. All bear testimony to their unequalled merits.

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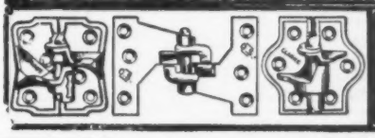

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Complete Outfits of Speaking Tubes, Whistles Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.

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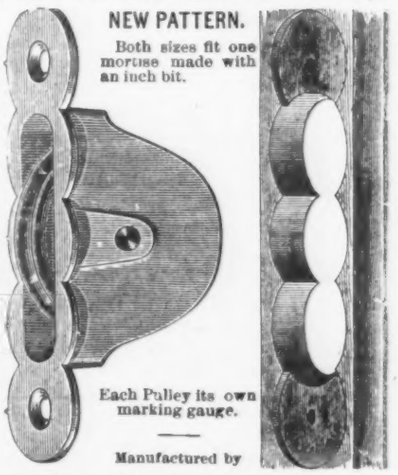
Palmer's Common Sense Frame Pulley.

NEW PATTERN.

Both sizes fit one mortise made with an inch bit.



Each Pulley its own marking gauge.

Manufactured by

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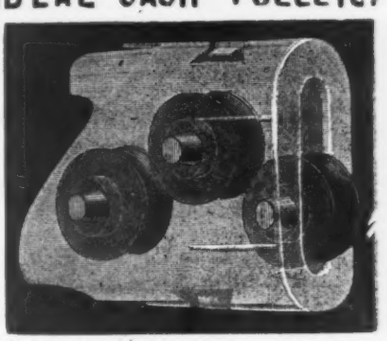
IDEAL SASH PULLEYS.



From two to six of the Ideal can be applied to one of any other make on the market. A great saving of time and money to contractors and carpenters. Marking Gauges furnished with each lot of pulleys. Send for circular and price.

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DOUBLE-ACTING SPRING BUTTS.

The Springs on this Butt are annexed to a single three-leaved Butt, instead of two three-leaved Butts, as in the Chicago. The strength of the Butt our only limit to size of Spring.

DOORS.	4 Japan'd Pair	4½ Jpd. N. Sg. Pair	24 Nkl Ptd Pair	34 Fr. Pt. Pair	44 Bronze Pair
¾ to 1⅛ in.	$1.00	$1.30	$ 2.70	$ 2.70	$ 8.00
1 to 1½ in.	2.00	2.75	5.00	5.00	13.00
1⅝ to 2 in.	4.00	5.00	7.50	7.50	20.00
2 to 2¾ in.	6.50	7.25	10.00	10.00	27.00
2⅞ to 3 in.	8.50	9.50	13.00	13.00	35.00

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CHICAGO SPRING BUTT CO.
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Broken Sash Cords

—A THING OF THE PAST—

When your windows are hung with

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Guaranteed for 10 Years.

Some are now in use 15 years and are as good to day as when put in.

Can be applied wherever cord is used, and without any alteration of pulleys or sashes.

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They ventilate and cool the room, giving free circulation of air and refreshing shade, and do not interfere with the ordinary use of the blinds.

Attachable to Old or New Blinds.

Sold by all the Hardware Trade.
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The only low-priced Scientific Door Spring made; exerts its greatest power at the latch. Equally desirable for Screen Doors, House Doors, or Store Doors.

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The Improved ANTI-SPLITTING
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FOUND AT LAST

THE BEST AND THE CHEAPEST.
Great Saving of Time and Material.

All with ¼-inch Steel Axles. These pulleys can be fitted to the window frames at the rate of 60 per hour. No chisels used. No screws required. It is held more firmly and makes a better finish than ANY OTHER PULLEY in the world.

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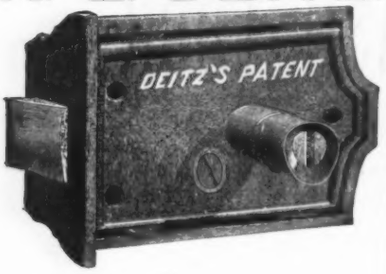

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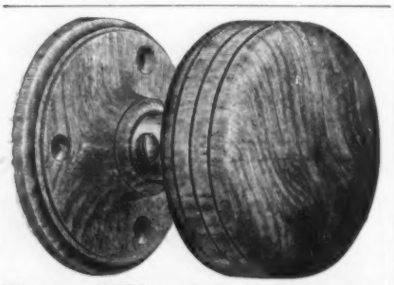
Factory, BROOKLYN, E. D., N. Y.



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CHECKING SPRING HINGES

for double-acting doors.

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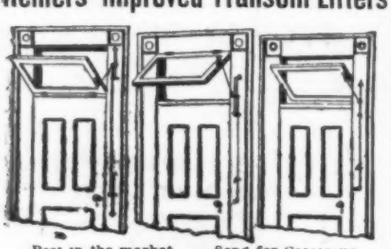
Reihers' Improved Transom Lifters



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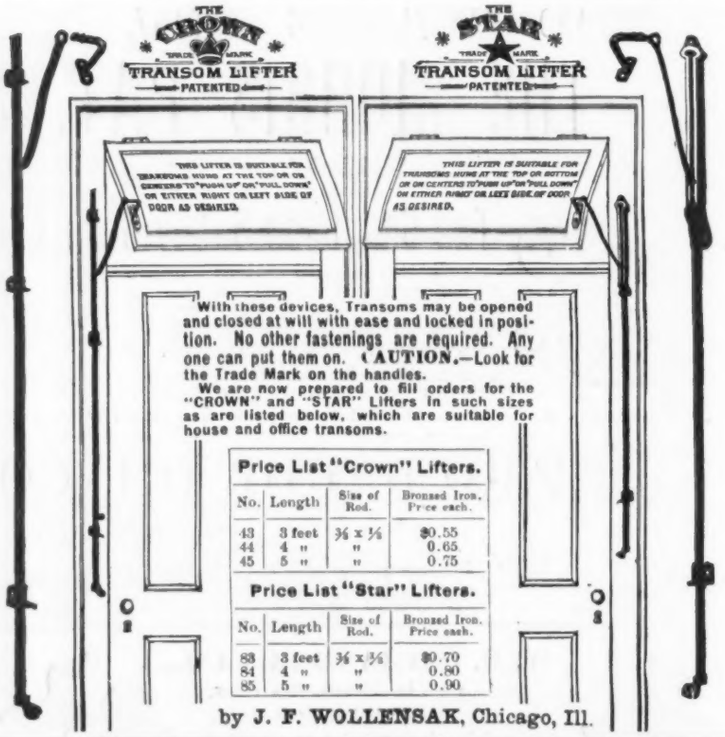
by using our "Worker," which opens or closes them without opening the window. They can be procured at any hardware store or by sending to DODD SHUTTER WORKER CO. No. 26 Church St., N. Y. Agents wanted.

The Queen Anne Screen Co., of Burlington, Vt., are manufacturing an

IMPROVED ADJUSTABLE WINDOW SCREEN,

with box panels. *The only one finished alike on both sides*, and both durable and cheap. Also a new frame for window screens and a new pattern of corners for both windows and doors, with sticks for frames.

Send for Circular and Price List.



With these devices, Transoms may be opened and closed at will with ease and locked in position. No other fastenings are required. Any one can put them on. CAUTION.—Look for the Trade Mark on the handles.

We are now prepared to fill orders for the "CROWN" and "STAR" Lifters in such sizes as are listed below, which are suitable for house and office transoms.

Price List "Crown" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
43	3 feet	⅜ x ⅛	$0.55
44	4 "	"	0.65
45	5 "	"	0.75

Price List "Star" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
83	3 feet	⅜ x ⅜	$0.70
84	4 "	"	0.80
85	5 "	"	0.90

by J. F. WOLLENSAK, Chicago, Ill.

BOSLEY'S FLEXIBLE RUBBER

WEATHER STRIPS.

Solid Rubber—Molded into Shape. All One Piece—No Stitching—No Cementing.

—PATENT APPLIED FOR.—

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Price per foot, 5c.
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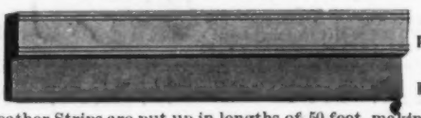

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Price per foot, 8c.
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Price per foot 10c.

These Flexible Weather Strips are put up in lengths of 50 feet, making a package about 6 or 8 inches wide—100 feet making one foot square. Any one can apply them with tack, hammer and shears. We also manufacture the **Peerless Rubber Window Cleaners and Floor Scrubbers.** *Liberal Discounts to the Trade.*

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Manufacture nearly *ONE THOUSAND* styles, sizes and varieties of

Extra Fine, Warranted Hand and Bench Tools,

for Watch, Clock, Piano and Cabinet Makers, Jewelers, Printers Electrotypers, Dentists, Amateurs, Carpenters, Builders, Machinists and almost every kind of Mechanic or Artisan.

Bullock's Patent Combined Steel Blade Meat Chopper, Bone Saw and Steak Tenderer. Just out! Sells at sight: Price per Dozen, net, $4.00. Write for price in gross and great gross lots.

Send Business Card and 4 cents in Stamps for Illustrated Price List.

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Strap and T Hinges,

CRATE HINGES AND HASPS,

Ship Scrapers, Iron Washers.

BRAIDED WIRE PICTURE CORD,

Tinned, Silt and Gold, put up in small round boxes of 25 yds. and 25 feet, warranted full length; cord pulled out through hole in center of box.

SEND FOR PRICES.

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SOLE MANUFACTURER OF BACKUS (PAT. 1880)

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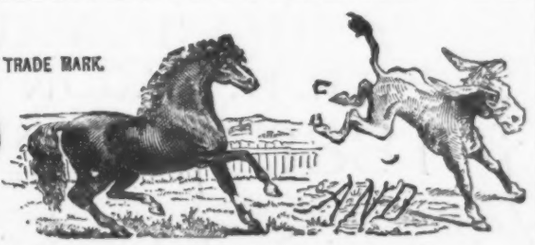

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For sale by all jobbers handling this class of goods

HARD STEEL TINNER'S RULE 3 FT. $2.50 EACH.

Carriage Hardware

LARGEST LINE OF

WROUGHT CARRIAGE FORGINGS,

MADE BY ANY HOUSE

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Cut One-half Size.

Sample pair will be sent free to hardware or saddlery firms by addressing

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Manufacturer of

PATENT STEEL

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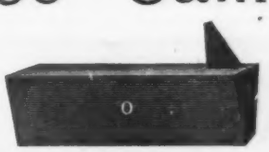

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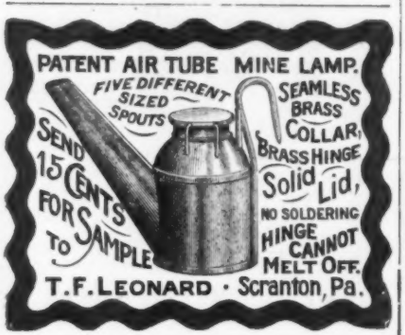

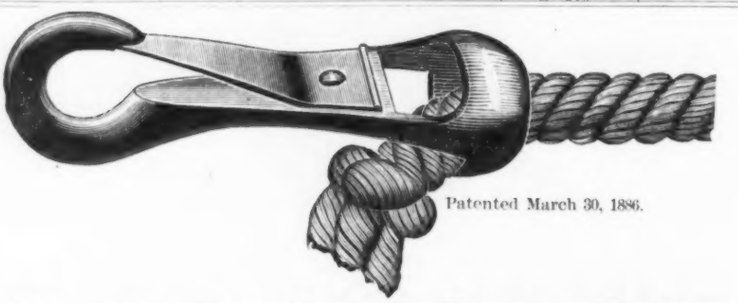

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Bronzed Southern Rope Snaps.

For Hammocks, Clothes Lines and other Domestic Purposes. Also for Rope Bridles and Driving Reins.

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CLIFF'S R. H. WAGON SPRINGS.

TITUS & BABCOCK,
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Manufacturers' Agents for
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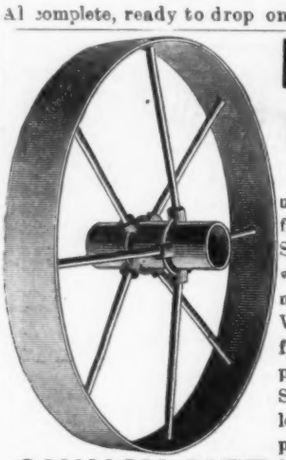
Cliff's 1887 " "
Ram's Horn Buggy Springs.
Send for Prices.

Best Wagon Spring on Earth.

All complete, ready to drop onto bolster.



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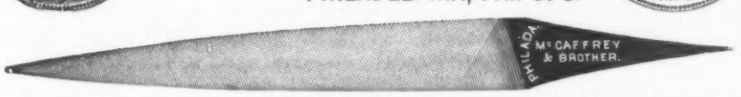

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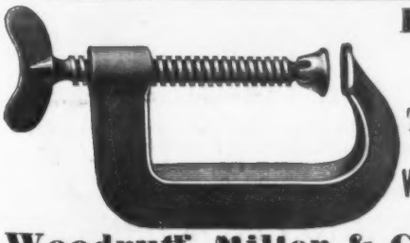

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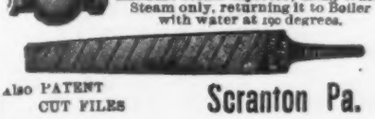

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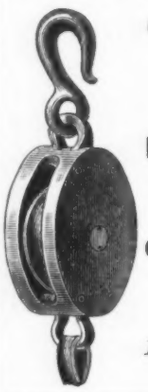

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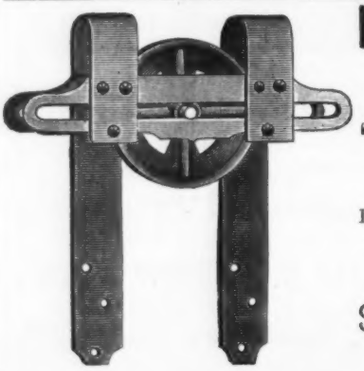

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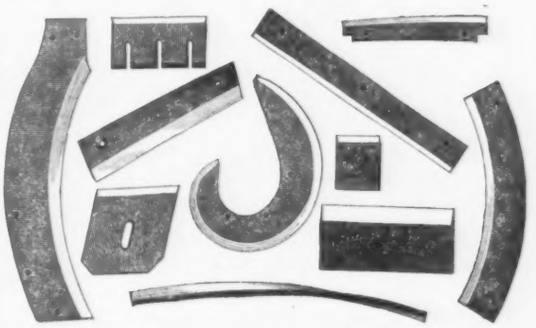

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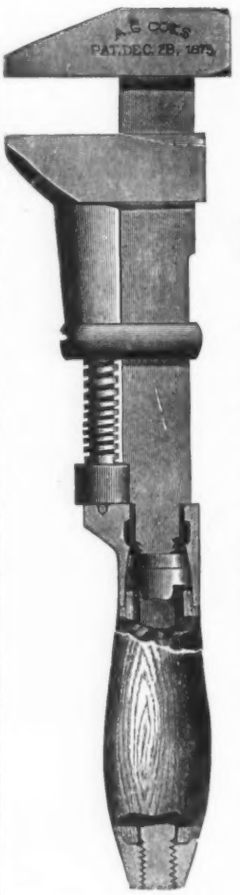

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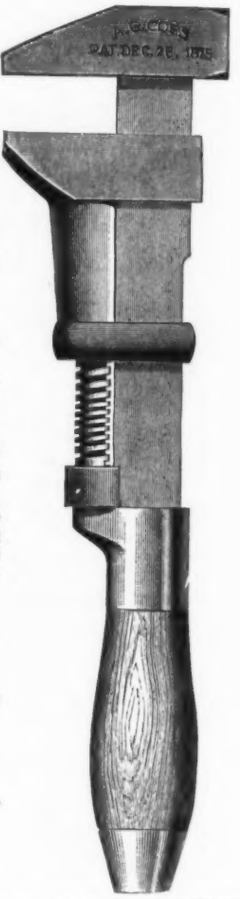

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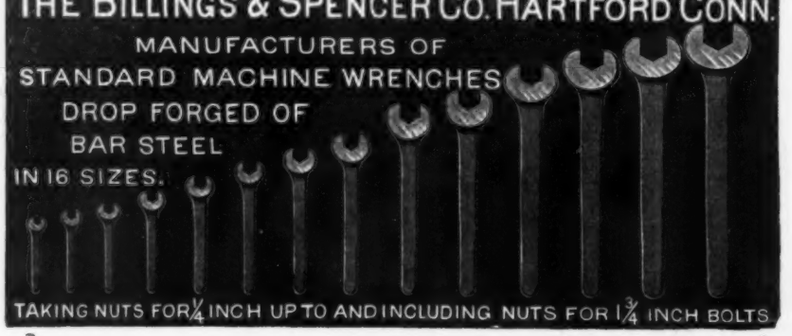

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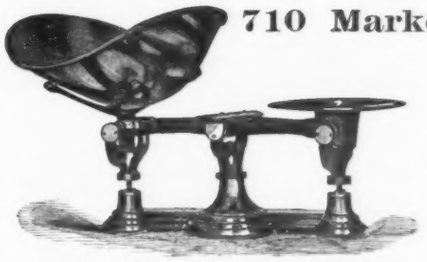

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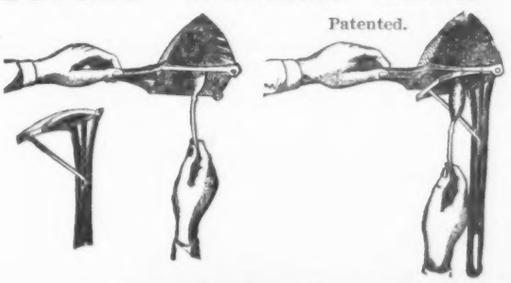

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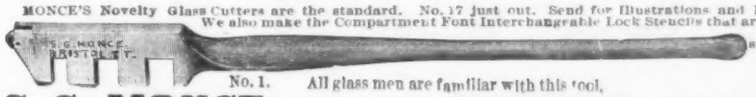

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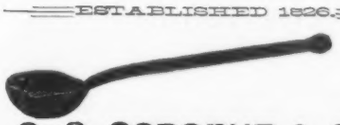

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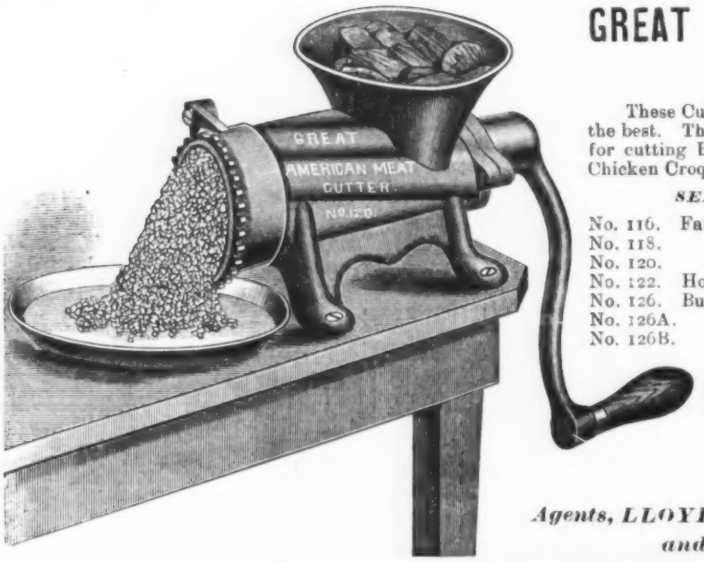

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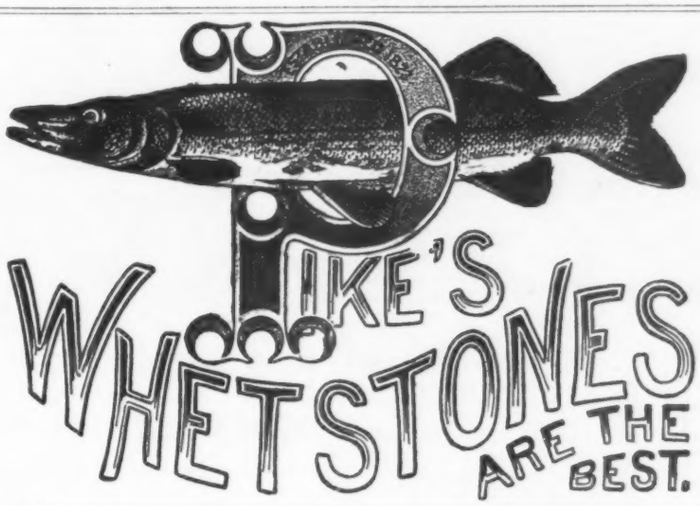

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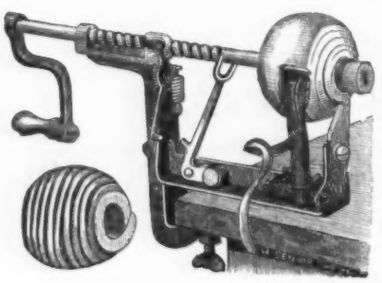

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Extract from the "Daily Register," the New York Law Journal, July 7, 1888.

ANDREWS, J.

Baeder et al. v. Baeder et al. (two cases)—After a careful examination of the voluminous papers submitted in these cases I am of the opinion that Baeder, Adamson & Co. branded their **second quality** of flint paper with the word "**Baeders,**" for the express purpose, and with the effect of inducing the public to purchase such **second quality** of paper as and for the **first quality** of the flint paper of the plaintiffs, **William A. Baeder** and **Howard R. Kern**; and that the defendant, the Russell & Erwin Mfg. Co. have, knowingly and intentionally, actually sold such **second quality** paper of Baeder, Adamson & Co. as and for the **first quality** paper of said **William A. Baeder** and **Howard R. Kern.** These acts of Baeder, Adamson & Co., and of the Russell & Erwin Mfg. Co. are **clearly unlawful,** and the motion to continue until the trial of the action the **injunction,** heretofore granted by Mr. Justice Barrett, in the action brought against those parties by **Baeder & Kern** will be **granted,** with $10 costs. I do not think that the mark used by **Baeder & Kern** can be considered a simulation of Baeder, Adamson & Co.'s first quality mark, nor that it is intended or calculated to mislead or deceive purchasers into taking **Baeder & Kern's Paper** as and for the first quality paper of Baeder, Adamson & Co. The motion for an **injunction,** in the action brought by Baeder, Adamson & Co. against **William A. Baeder & Kern** will be **denied,** with $10 costs.

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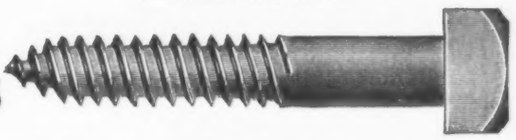

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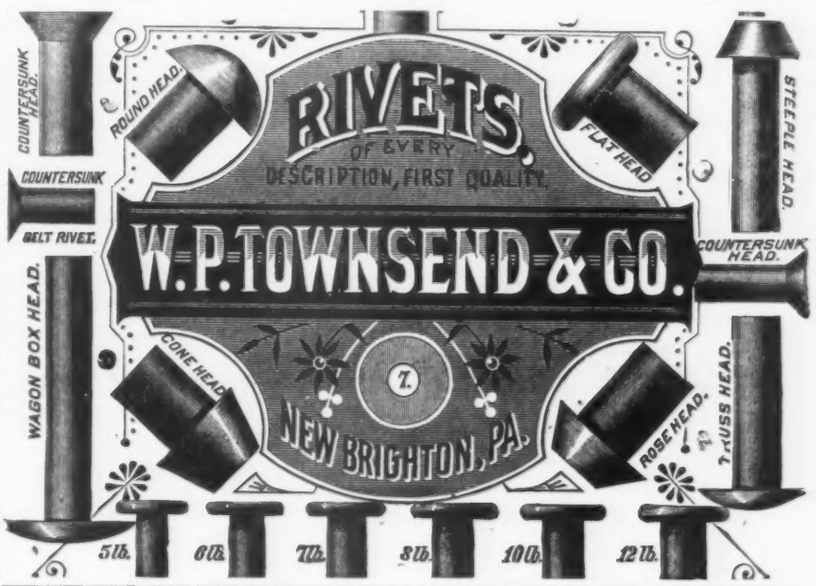

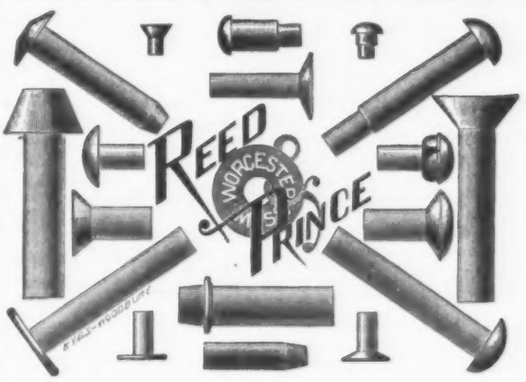

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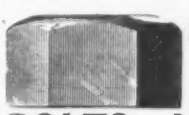

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PIECED WARE. [Card No. 26-A.]

DESCRIPTION.	Size or No.	List.	Cost.	Job.	Sell.
BOILERS.					
COFFEE,	7 in.				
Bailed and	8 "				
Copper Bottom.	9 "				

DESCRIPTION AND PRICES.

Card No.		Size and Price per Card.
1	**A—Bar Iron,** Weight of Round, Square and Flat, per Foot and Tire per set. Western Classification and Prices of Extras on American, Norway and Swedes. **B—Bar Steel,** All kinds and Sizes with Prices of Extras. Horse and Mule Shoes, Size, Weight, No. in Keg. Toe Calks. Cut Nails, List of Extras.	5½x18 in. 40 Cts.
2	**A—Cut Tacks,** exact size cuts. Length. Number in a lb. **B—Large Head Carpet Tacks.** Gimp and Lace Tacks. Hungarian Nails, Hob Nails, Blued and Tinned, American and Swedes. Exact size cuts shown of all the above.	3x13½ in. 30 Cts.
3	**A—Shoe Nails.** Cigar Box Nails. Copper Tacks, Double-Pointed Tacks and Cuts, Glaziers' Points and Cuts. Barbed Blind Staples. **B—Patent Brads.** Finishing Nails. Blued Clout Nails. Tinned Clout Nails.	3x13½ in. 30 Cts.
4	**A—Iron Wood Screws.**	6x16 in. 40 Cts.
5	B—Iron Wood Screws (contd.) Iron Machine Screws.	
6	**A—Standard Carriage Bolts.** B—Standard Carriage Bolts (continued.) Plow Bolts. **A—Machine Bolts.**	3x13½ in. 30 Cts.
7	**B—Standard Tire Bolts.** Round and Flat Head Stove Bolts.	3x13½ in. 30 Cts.
8	**A—Philadelphia Carriage Bolts.** **B—Philadelphia Carriage and Tire Bolts.**	3x13½ in. 30 Cts.
9	**A—Square and Hexagon Nuts.** Wrought Washers. Size of Bolt, size of Hole, Width, Thickness, number in 100 lbs. **B—Coach or Lag Screws.** Superior and Norway Axle Clips.	3x13½ in. 30 Cts.
10	**A—Bright Screw Hooks.** Belt Hooks. Blake's Belt Studs. **B—Bright Screw Eyes.** Gate Hooks and Eyes. Cornice Hooks and Eyes.	3x13½ in. 30 Cts.
11	**A—Plate Casters and Bed Casters.** **B—Wrought Hooks and Staples.** Trap Door Rings. Hasps and Staples, and Staples only.	3x13½ in. 30 Cts.
12	**A—Saws.** Hand, Panel and Rip. Combination and Back. Disston's and W. M. & C.'s corresponding numbers and "Our Brand." **B—Saws.** Back, Compass, Pruning, Kitchen, Butchers' Bow and Blades. Framed Wood Saws and Blades.	3x13½ in. 30 Cts.
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16	**A—Files.** Bastard, Mill, Flat, Hand, Half-round, Round, Square, Knife, Warding. Second Cut, Mill, Flat, Hand, Half-round. Smooth, Flat and Hand. **B—Files.** Smooth, Half-round, Round, Cabinet, Pit Saw, Hook Tooth, Gin Saw, Band Saw, Cant, Taper, Stubb's Taper. **Rasps,** Cabinet, Wood, Shoe, Horse.	7x15 in. 50 Cts.
17	A—Rubber and Hemp Packing. Gaskets or Rings. Rubber Hose. B—Leather and Rubber Belting.	3x13½ in. 30 Cts.
18	**A—Window Glass.** List Prices and Number Lights in a Box. Also ruled columns for other Wholesale and Retail rates. **B—Sash, Doors and Blinds.** List Prices.	6x18½ in. 40 Cts.
19	**A—Hinges.** Strap, Light and Heavy. T, Light, Heavy and Extra Heavy. Hinge Hasps, Screw Hook and Strap. **B—Screw Hook and Eye Hinges.** Barn Door Hangers. Checked Back. Kidder's, Anti-Friction, Wrought Frame. Barn Door Stay Rollers, Rail, Pulls, Latches. Sliding Door Rail.	3x13½ in. 30 Cts.
20	**A—Wrought Butts.** Narrow, Loose Pin, Light Inside Blind. **B—Loose Pin Butts.** Plain, Japanned and Plated Tips.	3x13½ in. 30 Cts.
21	A—Loose Joint Butts, Plain, Japanned and Plated Tips. B—Table Hinges, Bronzed Iron Blind Butts. Brass Butts, Narrow, Middle, Broad and Desk. Width when open, given of all.	3x13½ in. 30 Cts.
22	**A—Door Bolts,** Barrel, Square Spring, Foot, Chain. B—**Door Bolts,** Flush, Neck and Miscellaneous kinds.	3x13½ in. 30 Cts.
	A—Screw Drivers, Flat and Round Blade, Ratchet, Clark's. Screw Driver Bits. Countersinks, Reamers', Belt or Saddlers' Punches. **B—Rules. Wrenches.**	3x13½ in. 30 Cts.

Card No.		Size and Price per Card.
23	**A—Hooks,** Coat and Hat, Wardrobe, School-house, Harness, Clothes-line. **B—Shelf Brackets. Drawer Pulls.**	3x13½ in. 30 Cts.
24	**A—Wood Planes.** Plane Irons, Cut and Double. B—**Patent Planes.** Patent Plane Irons.	3x13½ in. 30 Cts.
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28	**A—Mortise Door Locks,** Latches, Knobs and Escutcheons. **B—Rim Door Locks,** Latches, etc. **A—Padlocks,** Japanned, Wrought Iron, Bronzed Iron, Brass and Jail.	7x22 in. 60 Cts.
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Broomell & Sanks, York, Pa.
Edge Moor Iron Co., Wilmington,
Newell Universal Mill Co., N. Y.
Pollock, W. B. & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Bolt and Rivet Clippers.
Chambers Bros. & Co., Philadelphia.

Books.
Lamberson, B., Portland, Or
Leigh, E. B., St. Louis, Mo.

Bolt Cutters.
Howard Iron Works, Buffalo, N. Y.
Wells Bros. Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Brass, *Manufacturers of.*
Ansonia Brass & Copper Co., N. Y.
Bridgeport Brass Co., 19 Murray, N. Y.
Davol John & Sons, 100 John, N. Y.
Holmes, Booth & Haydens, N. Y.
Plume & Atwood Mfg. Co., N. Y.
Rome Brass and Copper Wks., Rome.
Scoville Mfg. Co., 421 Broome, N. Y.
Waterbury Brass Co., 296 B'way, N. Y

Brass Butt Hinges.
Tiebout W. & J., N. Y.

Brass Founders.
Deoxidized Metal Co., Bridgeport.
Reeves Paul S., Philadelphia
Stewart Mattson Mfg. Co., Phila.

Brass Goods.
Brass Goods Mfg. Co., N. Y.

Butcher and Shoe Knives. *Manufacturers of.*
Goodell Co., Antrim, N. H.
Wilson John, Sheffield, England.

Butts and Hinges.
Gilmore, E. W. & Co, No. Easton, Mass.
Sabin Machine Co., Montpelier, Vt.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.

Calipers and Dividers.
Richardson C. F., Athol, Mass.
J. Stevens Arms and Tool Co., Chicopee Falls, Mass.
Starrett L. S., Athol, Mass.

Can Makers' Tools and Machines.
Crosby G. A. & Co., Chicago.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Car Axles.
Roberts A. & P. & Co., Phila.

Car Wheels.
Knoxville Car Wheel Co., Knoxville Tenn.
Whitney, A. & Sons, Philadelphia.

Carriage Hardware. *Makers of.*
E. D. Clapp Mfg. Co., Auburn, N. Y.
Scranton Forging Co., Scranton, Pa.
Smith B. D. & Co., Plantsville, Conn.
Woodruff, Miller & Co., Mt. Carmel, Ct.

Castings, Iron and Steel.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
S. Cheney & Son, Manitus, N. Y.
Chester Steel Casting Co., Philia.
Cleveland Foundry Co., Cleveland, O.
Eureka Cast Steel Co., Chester, Pa.
Flagg Stanley G. & Co., Phila.
Haight & Clark Albany, N. Y.
Hammer & Co., Branford, Conn.
I. S. Spencer's Sons, Guilford, Conn.
Johnson L. G. & Co., Spuyton Duyvil.
Lloyd-Booth Co., Youngstown, Ohio.
Morris, Tasker & Co., 224 South Third Street, Phila.
Myers, Osborn & Co., Cleveland, O.
New Howe Mfg. Co., Bridgeport.
North Brothers Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Palmers & De Mooy, Cleveland, O.
Pittsburgh Steel Casting Co. Pittsburgh.
Pratt & Letchworth, Buffalo, N. Y.
Sessions Foundry Co., Bristol, Conn.
Sharon Steel Castings Co., Sharon, Pa.
Shepard Hdw. Co., Buffalo, N. Y.
Springfield Fdry. Co., Springfield.
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry, Syracuse.
Syracuse Mall. Iron Wks, Syracuse.
Taylor & Boggis Fdry Co., Cleveland.
Vulcan Iron Works, New Britain, Conn.
Thos. D. West Fdry Co., Cleveland, Ohio.
Wetherill Robt. & Co., Chester, Pa.

Cement.
Johnson & Wilson, 91 Liberty, N. Y.

Chains.
Bradlee & Co., Philadelphia.
Wm. H. Haskell Co., Pawtucket, R. I.

Chemicals.
Eimer & Amend, 205 Third av., N. Y.

Chemical Iron Works.
Gray's Ferry Foundry and Boiler Co., Philadelphia, Pa.

Chisels, *Manufacturer of.*
Buck Bros., Millbury, Mass.
Jennings C. E., 79 Reade N. Y.

Chucks.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
D. E. Whiton Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.
Woodruff, Walter W. & Sons, Mt. Carmel, Ct.

Clothes Dryers.
Empire Wringer Co., Auburn, N. Y

Coal.
Borden & Lovell, 70 West N. Y.
Nicolls, W. J. & Co., 35 Broadway, N. Y.
Pardee A. & Co., 111 Broadway, N. Y.

Coat and Hat Hooks.
Hamilton & Russell Mfg., Co., Worcester, Mass.

Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia.
Lane Bros., Poughkeepsie, N. Y.

Coke.
Connellsville Coke & IronCo., Phila.
Schoonmaker J. M., Pittsburgh.

Commission Merchants, Iron, Steel, &c.
Howard Childs & Co., Pittsburgh.
Knapp & Hague, 52 Fulton, N. Y.

Copper.
New Haven Copper Co., Pearl, N. Y.
Rome Brass and Copper Works, Rome, N. Y.

Cordage.
Elizabethport Steam Cordage Co., 46 South, N. Y.

Corrugated Iron.
Lloyd Iron Roofing & Paint Co, Chicago, Ill.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.
Sagendorph Iron Roofing and Corrugating Co., Cincinnati, Ohio.
Standard Iron Co., Bridgeport, Ohio.

Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 8th, N. Y.
Shields & Brown Co., Chicago, Ill.

Cranes.
Sellers, Wm. & Co., Philadelphia, Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cutlery, *Importers of.*
Clatworthy, F. & W., N. Y.
Dame, Stoddard & Kendall, Boston, Mass.
Field, Alfred & Co., N. Y.
Gurney, F. B., 116 Chambers St., N. Y.

Cutlery, *Manufacturers of.*
Bingham, W. & Co., Cleveland, Ohio.
Goodell Co., Antrim, N. H.
Healy, C. J. & Co., 26 Warren, New York.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Dampers.
Shepard Hardware Co., Buffalo, N. Y.
Shepard, Sidney & Co., Buffalo, N. Y.

Door Checks.
Bardsley, J., 59 Elm St., New York.

Door Hangers, House and Barn.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. Co., Chicago, Ill.
Stearns, E. C. & Co., Syracuse, N. Y.

Door Knobs.
Boston Knob Co., Boston, Mass.

Door Springs.
Paine, A. W., Peaboy, Mass.

Drilling Machines.
Daliett Thos. H. & Co., Philadelphia
Dwight Slate Machine Co., Hartford Conn.
Illinois Iron & Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Sigourney Tool Co., Hartford, Conn.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Universal Radial Drill Co., Cinn.

Drills, Upright.
Currier & Snyder, Worcester, Mass.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Billings & Spencer Co., Hartford, Ct.
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Scranton Forging Co., Scranton, Pa.
Williams, J. H. & Co., Brooklyn, N. Y.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Beecher & Peck, New Haven, Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Edward Storm Spring Co. Pough keepsie, N. Y.

Edge Tools, *Makers of.*
White, L. & L. J., Buffalo, N. Y.

Egg Poachers.
Paine, Diehl & Co., Philadelphia.

Electrical Supplies.
Wollensak, J. F., Chicago, Ill.

Electric Bells.
Ostrander, W. R. & Co., New York.

Electric Lighting.
The Brush Electric Co., Cleveland, O.
Waterhouse Electric & Mfg. Co. Hartford, Conn.

Electric Dynamo Machines.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct

Elevators, *Makers of.*
Morse, Williams & Co., Phila., Pa.
Stokes & Parrish Elevator Co., Philadelphia, Pa.

Emery Paper, Cloth, &c.
Walpole Emery Mills, S. Walpole, Mass

Emery Wheels.
New York Belting and Packing Co. 15 Park Row, N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Springfield Glue and Emery Wheel Co., Springfield, Mass.
Sterling Emery Wheel Co., 17 Dey Street, N. Y.
The Tanite Co., Stroudburg, Pa.
Waltham Emery Wheel Co. Waltham, Mass.

Engineering Implements & Supplies.
Queen & Co., Philadelphia, Pa.

Engineers.
Gordon, Strobel & Laureau, Phila.

Engineers and Contractors.
Laughlin, A. & Co., Cleveland, O.
Lean & Blair, Pittsburgh, Pa.
McClure & Shuler, Pittsburgh, Pa.
McKenna, Ryan & Sons, Pittsburgh.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa.
Stein & Schwarz, Philadelphia, Pa.
Swindell Construction Co. Pittsburgh, Pa.
Waite & Van Harlingen, Phila. Pa.

Engines, Gas.
Clerk Gas Engine Co., Phila., Pa.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Climax Mfg. Co., Corry, Pa.
Farquhar, A. B. & Son, York, Pa.
Harrisburg Car Mfg. Co., Harrisburg Pa.
Leffel Jas. & Co., Springfield, O.
Newell Universal Mill Co., 10 Barclay N. Y.
Payne B. W. & Sons, 49 Dey, N. Y
Russell & Co., Massillon, Ohio
Norwalk Iron Works Co., S. Norwalk
Todd Wm. & Co., Youngstown, O.
Wetherill Robt. & Co., Chester, Pa.

Engravers and Printers.
Conant, J. S. & Co., Boston, Mass.
Kyes & Woodbury, Worcester, Mass.

Evaporators.
Oyler, Geo. K., St. Louis, Mo.

Exhaust Fans.
Clark, Geo. P., Windsor Locks, Conn.

Exhaust Pipe Condensing Head.
Aller, Amos, 109 Liberty, N. Y.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn, N. Y.

Faucets, Self-Measuring.
Enterprise Mfg. Co., Philada., Pa.

Faucets, *Makers of.*
John Sommer's Son, Newark, N. J.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn

Fence Posts.
Long, C. S., Aurora, Ills.

Fences, Wrought Iron.
Champion Iron Fence Co., Kenton, O.

Files, *Importers of.*
Montgomery & Co., 105 Fulton, N. Y.
Moss, F. W. 80 John, N. Y.

Files and Rasps, *Manufacturers of.*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
Jetter Mfg. Co., Buffalo, N. Y.
McCadrey & Bro., Philadelphia.
Nicholson File Co., Providence, R. I.
Paul Chas. B., Williamsburg, N. Y.

Fire Brick, *Makers of.*
Birmingham Fire Brick Works, Birmingham, Ala.
Borgner & O'Brien, Philadelphia, Pa
Gardner James, Cumberland, Md.
Haws, A. J. & Sons, Johnstown, Pa.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer H. & Son, 420 E. 23d, N. Y.
Newton & Co., Albany, N. Y.
Ostrander James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine M. D. & Bro., Woodbridge.

Fish Hooks.
Alford & Berkele Co., 77 Chambers St., N. Y.

Fishing Tackle.
Field J. B. & Co., Detroit, Mich
Shields, John & Co., Brookline, Mass.

Flint Garnet Paper.
Baeder Flint Paper Co., 283 Pearl N Y
Upton Geo., Boston, Mass.

Flour Sifters.
Fred. J. Meyers Mfg. Co., Covington, Ky.

(See Alphabetical Index, Page 82.)

Foreign Iron Merchants.
Jno G. Rollins, London England.

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y.
Bullock, T. H., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co. Lancaster, Pa.
Sturtevant B. F., Boston, Mass.

Forgings, Iron and Steel.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Miller Forge Co., Pittsburgh, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg Co., Cincinnati, O.

Foundry Riddles.
Estey W. S., 71 Fulton, N. Y.

Foundry Supplies.
Detroit Foundry Equipment Co., Detroit Mich.
S. Obermayer, Foundry Supply Mfg Co., Cincinnati, O.
Paxson J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.

Friction Pulleys.
Sandy Hill Iron and Brass Works, Sandy Hill, N. Y.

Furnace Hoists.
Stokes & Parrish Machine Co., Phila.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila, Pa.

Gears.
Grant, Geo. B., Boston, Mass.

Gear Cutters.
Grant, Geo. B., Boston, Mass.
D. E. Whiton Mach. Co., New London, Conn.

Glass Cutters.
Andress, Thos. J., Philadelphia, Pa.
Monce, S. G., Bristol Conn.

Glue.
Le Page Liquid Glue and Cement Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.
Upton, Geo., Boston, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Gunpowder. *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hammers, Steam.
Bradley & Co., Syracuse, N. Y.

Hand Force Pumps.
Union Mfg. Co., 103 Chambers, N. Y.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field Alfred & Co., N. Y.
Jacobus, W. H. & Co., N. Y.

Hardware Manufacturers.
Brand Mfg. Co., New Britain, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Vaughan & Bushnell Mfg. Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H., 115 Chambers, N. Y.

Hardware Shelf Boxes.
Green S. H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.
Sharp H. H. & Co., Philadelphia, Pa.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit Brace Co., Buffalo, N. Y.
Enterprise Mfg Co., Philadelphia, Pa.
Greene Tweed & Co., N. Y.
Paine, Diehl & Co., Philadelphia, Pa.
Rex A. C. & Co., Philadelphia, Pa.
Saxton E. R., Buffalo N. Y.
Wire Goods Co., Worcester, Mass.
Underhill, Cluch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Carriers.
Myers F. E. & Bro., Ashland, O.

Hay Fork Pulleys
Boston and Lockport Block Co., Boston Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hinges.
Union Mfg. Co., 103 Chambers, N. Y.

Hog Ringers.
Chambers, Bering & Quinlan Co., Decatur

Hoisting Machines.
Box Alfred & Co., 314 Green, Phila
Copeland & Bacon, 85 Liberty St., N. Y.
Energy Mfg. Co., Philadelphia, Pa.
Harrington E., Son & Co., Phila.
McCoy & Sanders, 26 Warren, N. Y.
Morse Williams & Co., Phila.
Sellers Wm. & Co., Phila. and N. Y.
Teal Hoist Co., Philadelphia.

Horse Nails. *Makers of.*
National Horse Nail Co, Vergennes.

Horse Shoes. *Makers of*
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa.

Hydrants, &c.
McLean John, N. Y.

Hydraulic Jacks.
Dudgeon Richard, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.

Indurated Fibre Ware
Union Indurated Fibre Co., N. Y

Injectors.
Aller, Amos, 109 Liberty, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron. *Manufacturers' Agents.*
Cox Justice, Jr., & Co., Philadelphia.
Hicks & D'ckey, Philadelphia, Pa.
Hoffman J. W. & Co., Philadelphia.
Levis Henry & Co., Philadelphia.

Iron. *Manufacturers of.*
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, O.
Montour Iron & Steel Co., Danville.
Moorhead-McCleane Co., Pittsburgh, Pa
Passaic Rolling Mill Co., Paterson.
Phœn'x Iron Co., 410 Walnut, Phila.
Pottstown Iron Co., Pottstown, Pa.
Stuart & McLean, Pittsburgh, Pa.
Troy Steel and Iron Co., Troy, N. Y.
Whitney A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philp C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Etting Edward J., Philadelphia, Pa.
Walbaum W. H. & Co., Philadelphia Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia.
Mohr J. J., 430 Walnut, Phila.
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila., Pa.
Hart, Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co., Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 100 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig. *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet. *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O.

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Millers Falls Co., 91 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Mast, Foos & Co., Springfield, O

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. F., Athol, Mass.

Locks and Knobs, *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co., Bridgeport.
Quackenbush, Abram, New York.
Yale & Towne Mfg. Co., Stamford

Machinery.
Adt John & Son, New Haven, Conn.
Barnes W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Bullard, E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray's Ferry F'd'y & Boiler Co., Phila. Pa.
Harrington, E. Son & Co., Phila., Pa.
Hendey Machine Co., Torrington, Ct.
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge, Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pryibil P., 467 W. 40th, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers Wm. & Co., Phila.
Snell, Henry L., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. F'd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co. Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. & Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y. Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Meat Choppers.
Enterprise Mfg Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N. Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Thomas, Dago J., 1 Broadway, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co., Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co., 139 Green'ch. N. Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Wash'ton N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Zucker & Levett Chemical Co., 557 to 564 West 16th, N. Y.

Norway Shapes, *Rollers of.*
Naylor & Co., 99 John, N. Y.
Rowland William & Harvey, Frankford Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester
Wilson J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn

Oil Stones.
A. F. Pike Mfg. Co., Pike Station, N. H.
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardner, Mass.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt Carmel, Conn.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Fraim, E. T., Lancaster, Pa.

Pails.
Brower, John, New York.

Paint.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton
Stocking E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co., Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Picture Cord.
Gilmore, E. W. & Co., No. Easton, Mass.

Pig Iron.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of.*
Donaldson Iron Co, Emaus, Pa.
Fox John, 160 Broadway, N. Y.
Morris, Tasker & Co., 234 South Third street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co, St. Louis, Mo.
Wood R. D. & Co., Phila.

Pistol Cases.
Tower & Lyon, 95 Chambers, N. Y

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Police Equipments.
Baldwin, Jos. & Co., Newark, N. J.
French, S. A., 400 Broome St., N. Y.

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N. Y

Post Hole Diggers.
Lagonda Mfg. Co., Springfield, O.

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Power Hammers.
Beiden R. A. & Co., Danbury, Conn.
Bradley & Co., Syracuse, N. Y.
Dienelt & Eisenhardt, Philadelphia
Duncan, W. P. & Co., Bellafonte, Pa.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Presses, Power, *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn

Pulleys
Edinburg Pulley Co., Edinburg, Md.

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Gould's Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
Keystone Engine and Machine Wks Phila., Pa.
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Easthampton Mass.

Pumps, Force.
Myers F. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y

Pumps. *Makers of.*
Columbiana Pump & Machine Co.
Douglas W. & S., Middletown, Conn.
Goulds Mfg. Co., 60 Barclay, N. Y.
Silver & Deming Mfg. Co., Salem, O.
Union Mfg. Co., 103 Chambers, N. Y.

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Punching and Shearing Presses.
Long & Allstatter Co., Hamilton, O.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown, Pa.
Joliet Steel Co., 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Cowles Mfg. Co., Bridgeport, Ct.

Razors.
Dame, Stoddard & Kendall, Boston, Mass.
J. R. Torrey Razor Co., Worcester Mass.

Razor Strops.
Tower & Lamont, Rochester, N. Y.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia,

Refrigerator Trimmings.
Brainerd & Co., 97 Chambers St., N. Y.

Rivets.
Disoway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rock Drills.
Clayton Air Compressor Works, Brooklyn, N. Y., and Dey, N. Y.

Rolling Mill Machinery.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co. Pittsburgh, Pa
Lloyd-Booth Co., Youngstown, Ohio.
Seaman, Sleeth & Black, Pittsburgh.

Roofing.
Garry Iron Roofing Co., Cleveland, O.

Rope Snaps.
Pratt & Letchworth, Buffalo, N. Y.

Rules, *Manufacturers of.*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Balances.
Caldwell, W. H., Rochester, N. Y.

Sash Cords and Chains.
Morton Thos., 65 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Claflin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers st., New York.
Ireland Mfg. Co., Cincinnati, O.
Ives H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Cohoes, N. Y.
Palmer Hardware Mfg. Co, Troy, N. Y.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury, Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Truax, Chauncey S., 64 College Place, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons, Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Kiehlé Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Ellrich Hdw Mfg. Co., Plantsville, Conn.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S., 205 Quarry, Philadelphia
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls, N. Y
King, O'Connor & Co., Baltimore, Md.

Scythe Stones and Whetstones
A. F. Pike Mfg. Co., Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 27 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Schollhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.
Rowlands Sons, T., Philadelphia, Pa.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown, Conn.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen 105 Walker, N.Y.
Wollensak, J. F., Chicago, Ill.

Sporting Goods.
Shields, Jno. & Co., Brookline, Mass.

Spelter.
Manning & Squier 111 Liberty, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.

Spring Hinges.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Strops.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon Richard, 24 Columbia, N. Y.
Duncan W. P. & Co., Bellefonte Pa.
Long & Allstatter Co., Hamilton, O.

Steam Heating.
Broomell & Sanas, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colville Steam Pump Co., St. Louis, Mo
Hughes Steam Pump Co., Cleveland, O.
McGowan John H. & Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk.

Steam Traps.
Aller Amos, 109 Liberty, N. Y.

Steel Figures and Alphabets.
Stutsman J. M., 181 William, N. Y.

Steel Importers.
Abbott Jere & Co., N.Y. & Boston.
Hobson Francis & Son, 97 John, N. Y.
Jessop Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West, N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones B. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N.Y.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller, Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss F. W., 83 John, N. Y.
Naylor & Co., 99 John, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N.Y.
Wardlow S. & C., Sheffield, Eng.
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Hobbe Mfg. Co., Bridgeport Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beaver-Webb, J., 145 Broadway.
Dicks & Dickey, Philadelphia, Pa.

Steel Nails
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs, *Manufacturers.*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N.Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng. 91 John, N. Y.
Leng John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops
J. R. Torrey & Co., Worcester, Mass.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Disoway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W., Springfield, Mass.
Ellrich Hdw. Mf. Co., Plantsville, Ct.
Hoague, J. H & Co., Chicopee, Mass
Humphrey Tool Co., Warren, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Transom Lifters.
Reiher F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Richie Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper
Bridgeport Brass Co., 19 Murray, N. Y.

Tubes, Steel.
Leng John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Type Writers.
Hammond Type Writer Co., 75-77 Nassau, N. Y.

Valves, Gas, Water and Steam
Chapman Valve Mfg. Co., Boston.
Leng John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 83 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers.
Lanman, E. B., Columbus, O.
Mason Iron Co., Philadelphia, Pa.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York.

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

Wheelbarrows.
Pugsley & Chapman, 8 Liberty, N. Y

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.

Wheels.
Quincy Metal Wheel Co., Quincy, Ills.
L. A. Weston & Co., Syracuse, N. Y

Window Cleaners.
Bosley, D. W. & Co., Chicago.

Window Screens.
Darby, Edw. & Sons, Philada., Pa
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren St., N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., L'd, Pittsburgh Pa
Howard & Morse, 45 Fulton, N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co., Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg Co., Worcester.
Worcester Wire Co., Worcester, Mass

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass.
Darby Edward & Sons, Philadelphia
Estey W. S., 71 Fulton, N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.

Wire Cutters.
Cronk Hanger Co., Elmira, N. Y.
King, J. M. & Co., Watertown, N. Y

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse, 45 Fulton, N. Y.

Wire Goods, *Manufacturers of*
Brooks M. S & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville
Howard & Morse, 45 Fulton, N. Y.
Knapp & Hague, New York.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
Adt John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Sweetser, W. A., Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Birmingham Wire Nail Co., Birmingham, Ct.
Dunbar, Hobart & Co., 39 Warren, N. Y
Field A. & Sons, Taunton, Mass.
Hartman Steel Co. Ltd., Pittsburgh Pa.
Phillips E. & Sons, South Hanover
Phillips, Townsend & Co., Phil., Pa
Pittsburgh Wire Nail Co., Pittsburgh Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
Wire Goods Co., Worcester.
Trufant W. E., Whitman, Mass.
Whitney A. R. & Co., New York City.

Wire Rods, Steel.
Whitney A. R. & Co., N. Y.

Wire Rope, Iron and Steel, *Makers.*
Broderick & Bascom, St. Louis, Mo.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St Louis, Mo.
Upson, Walton & Co., Cleveland, O.
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co Springfield, Mass.
Billings Spencer & Co., Hartford Conn.
Coes Wrench Co, Worcester, Mass.
Utility Wrench Co, N. Y.
Williams, J. H., Brooklyn, N. Y.

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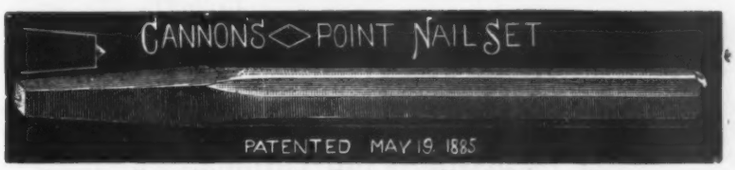

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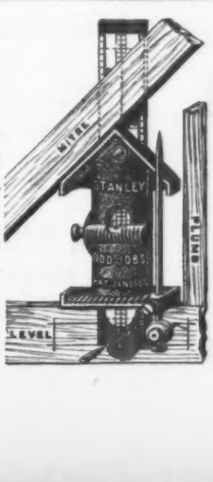

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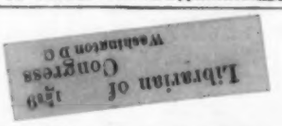

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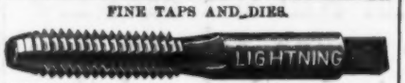

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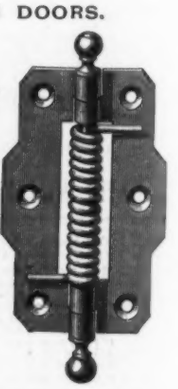

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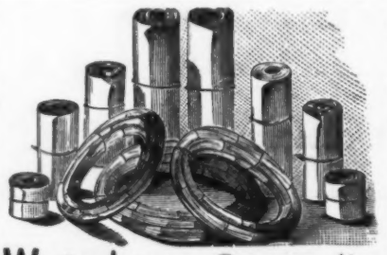

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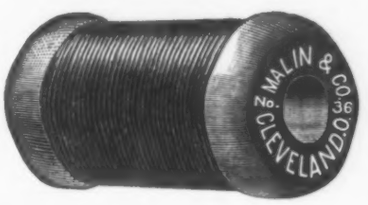

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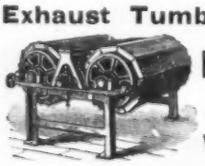

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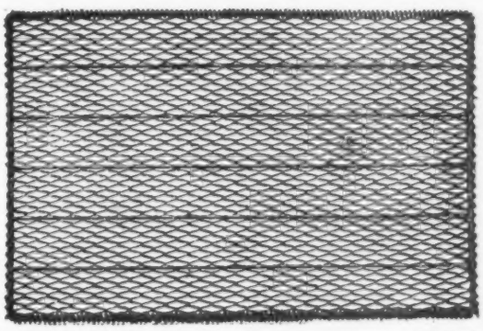

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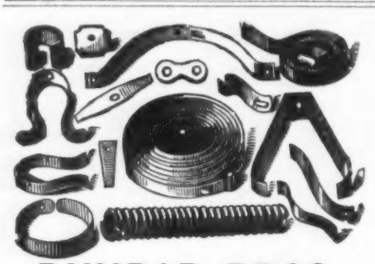

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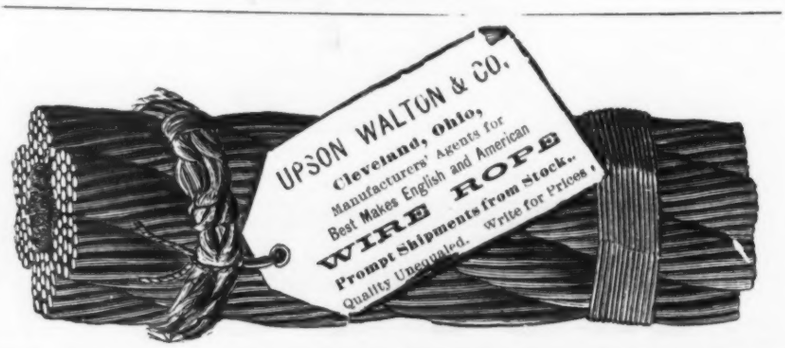

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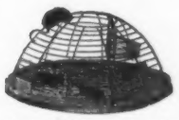

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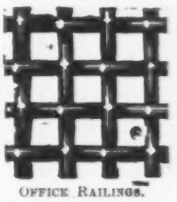

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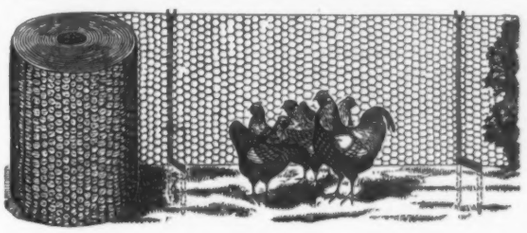

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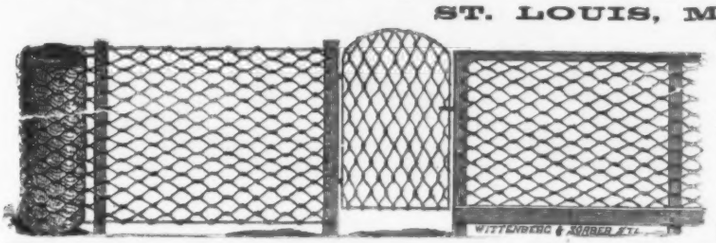

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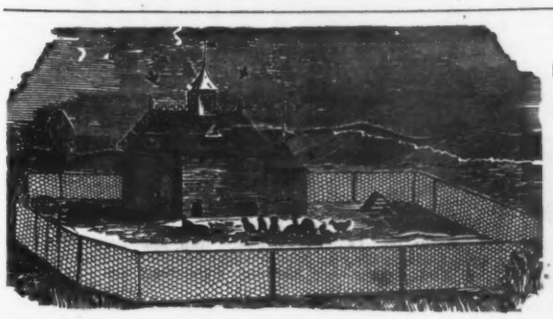

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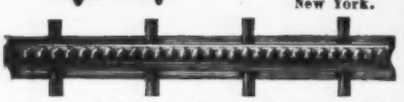

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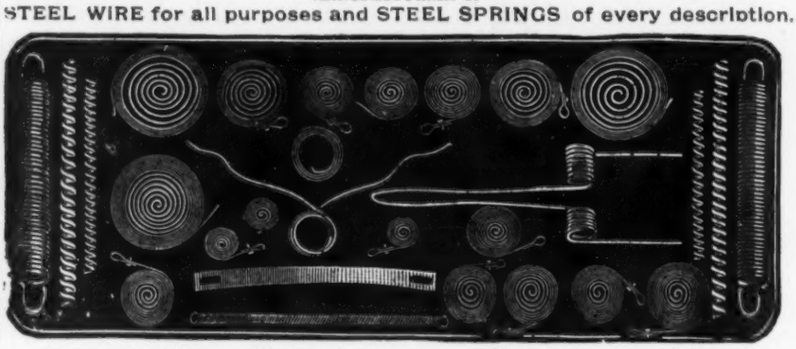

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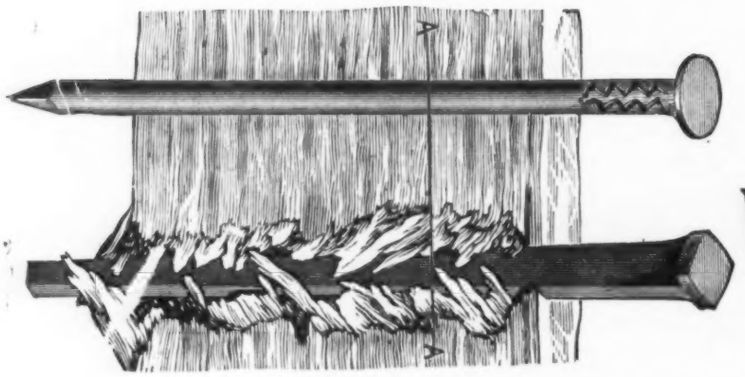

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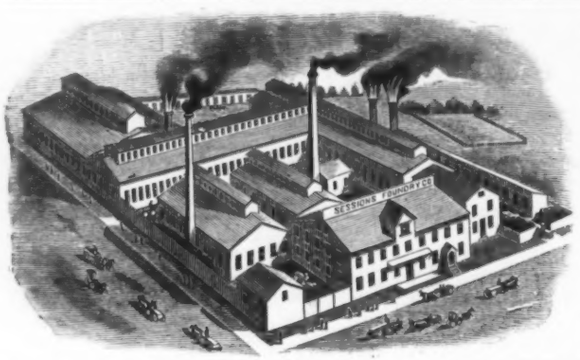

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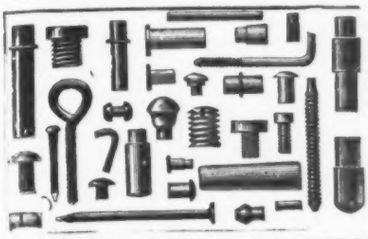

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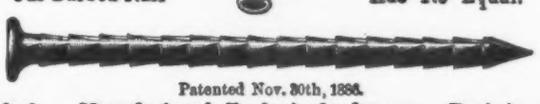

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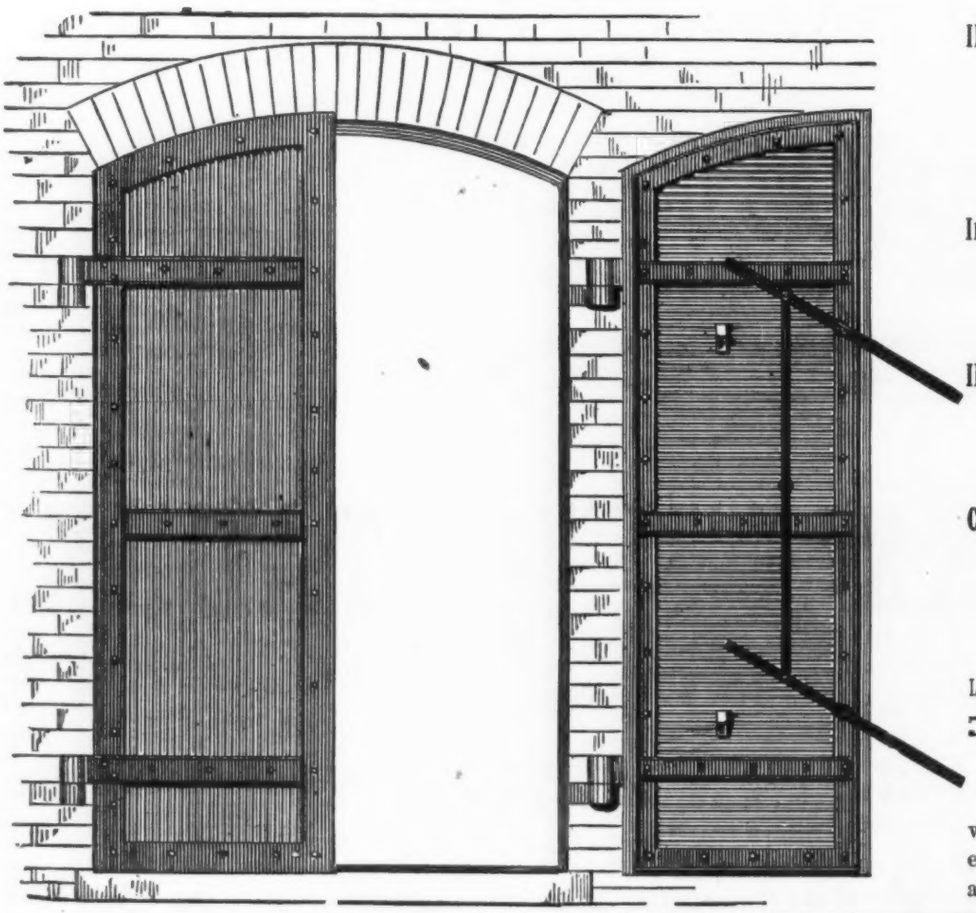

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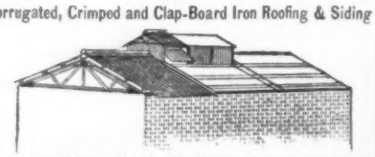

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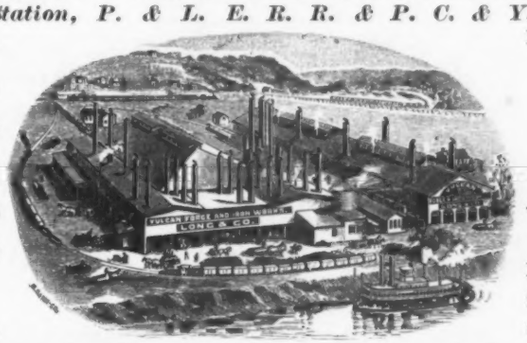

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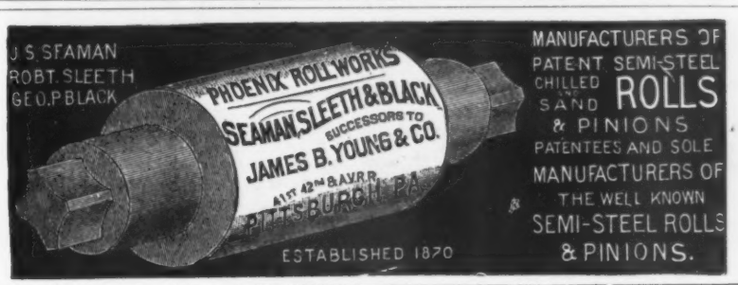

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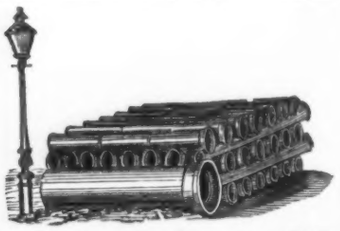

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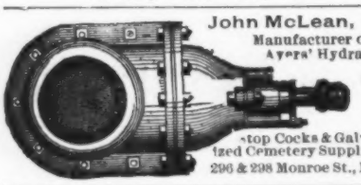

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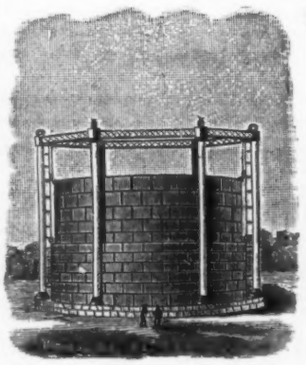

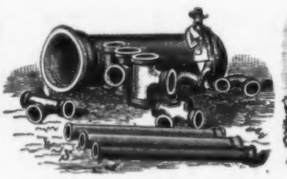

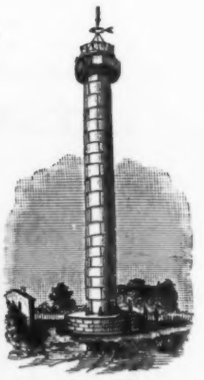

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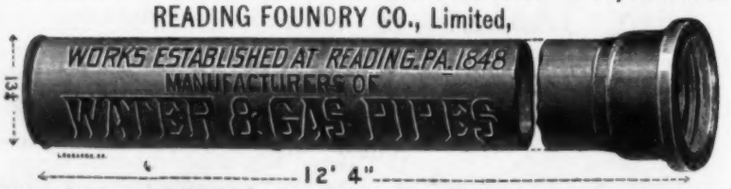

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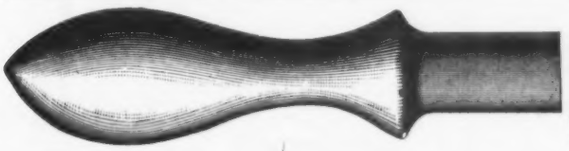

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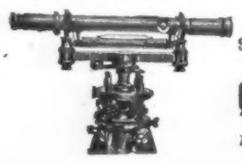

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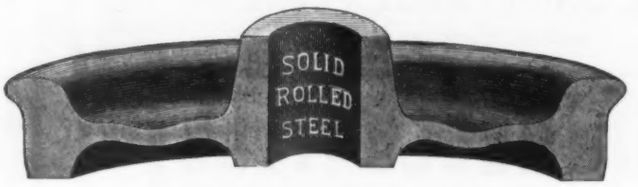

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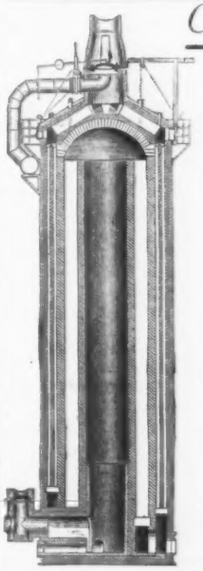

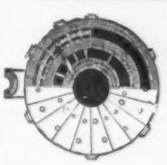

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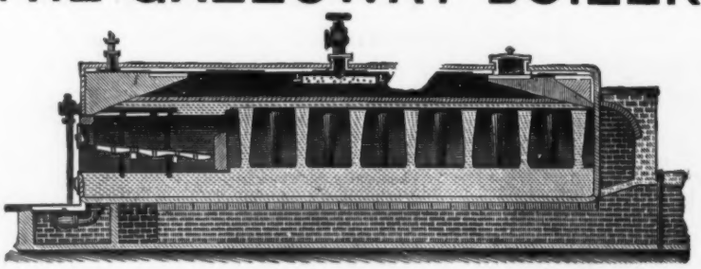

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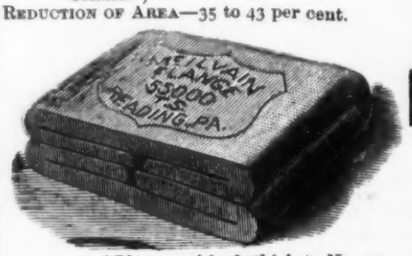

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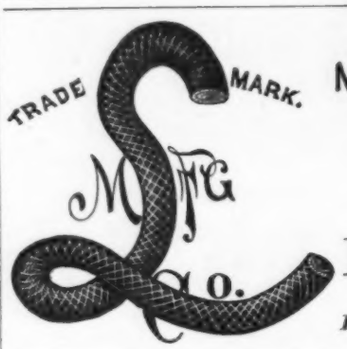

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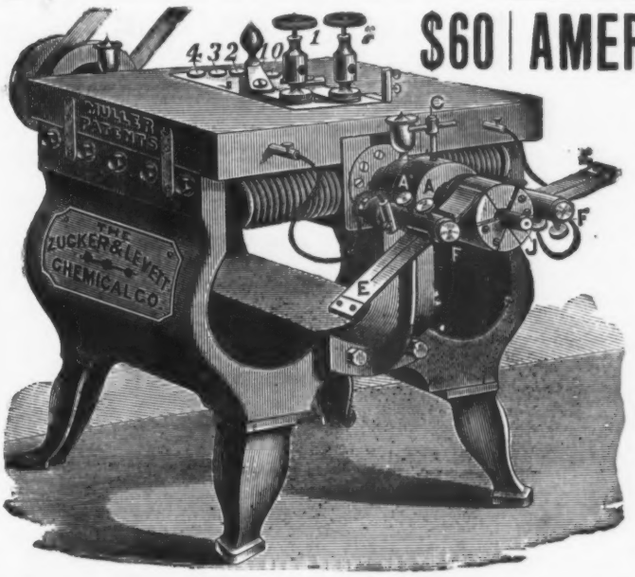

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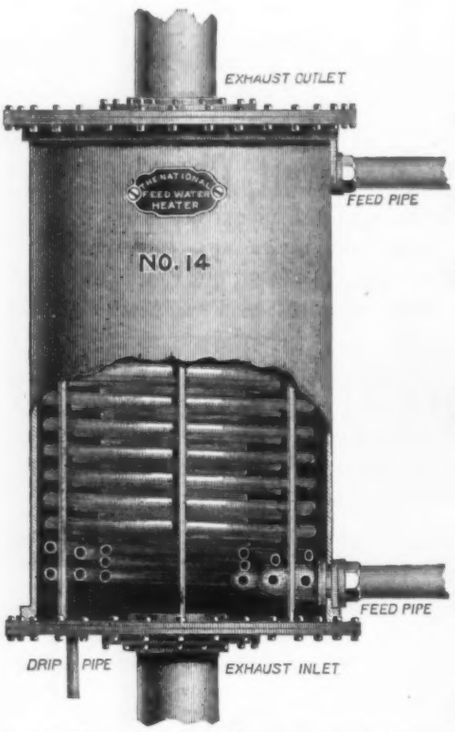

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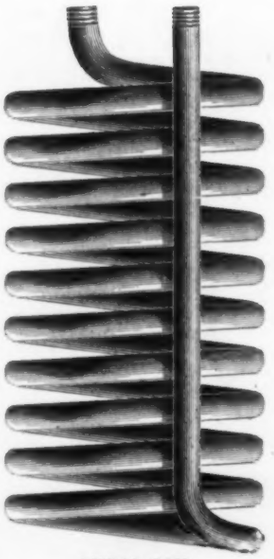

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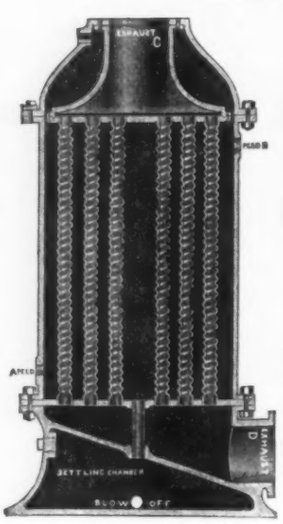

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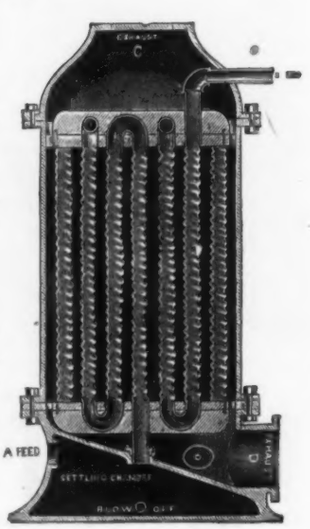

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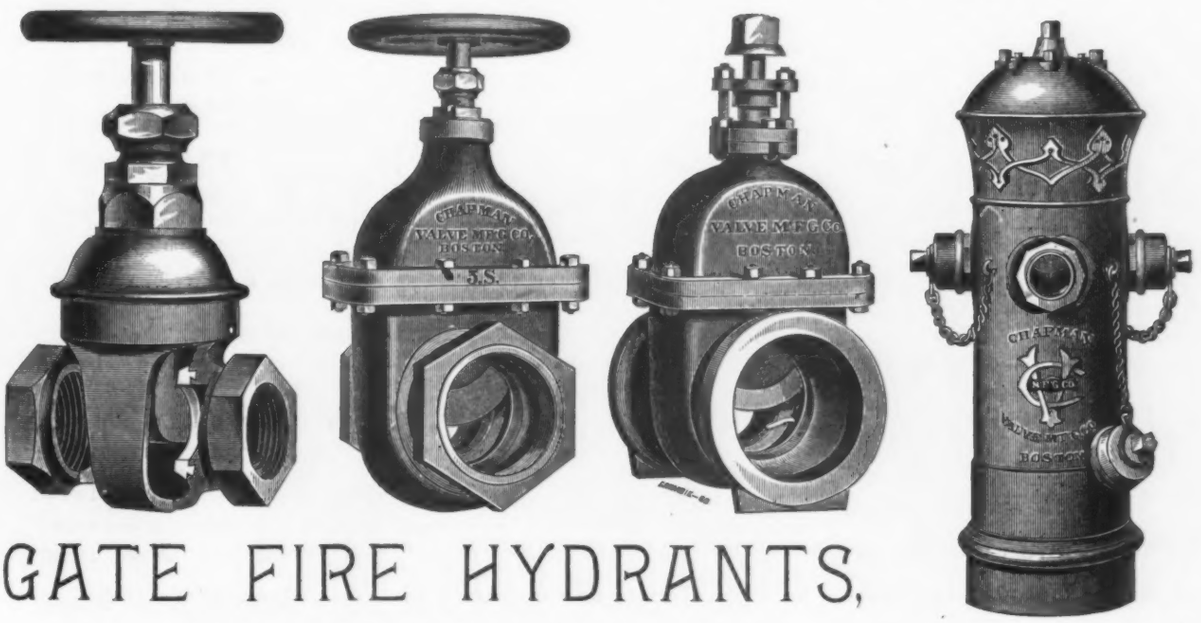

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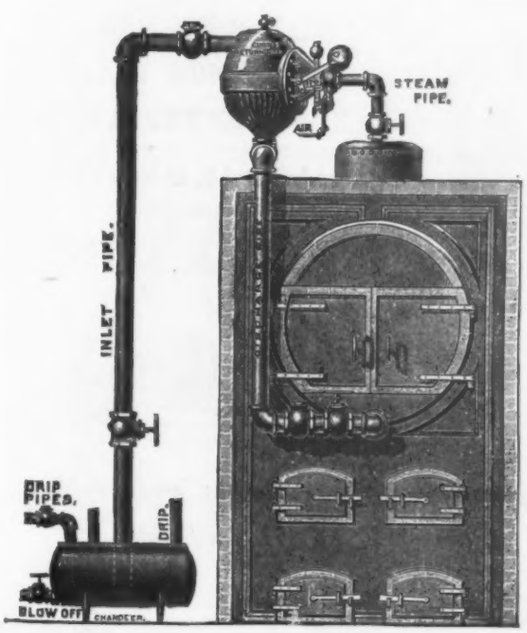

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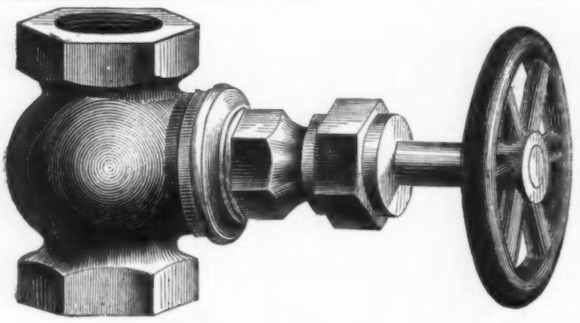

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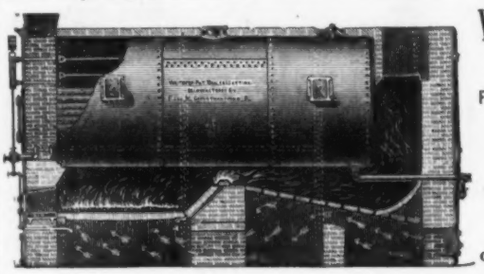

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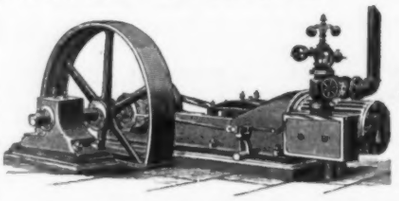

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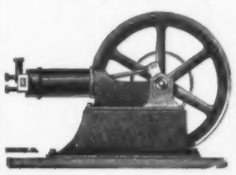

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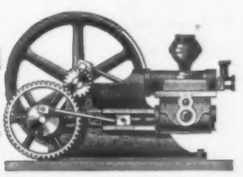

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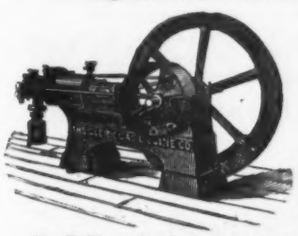

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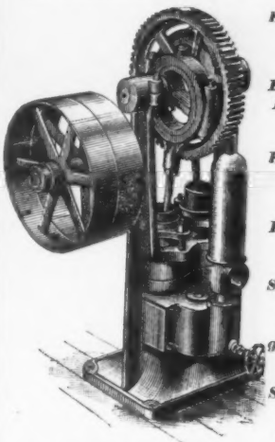

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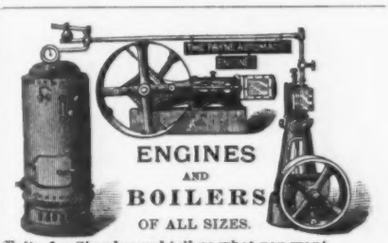

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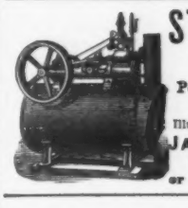

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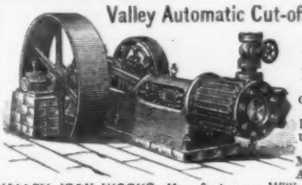

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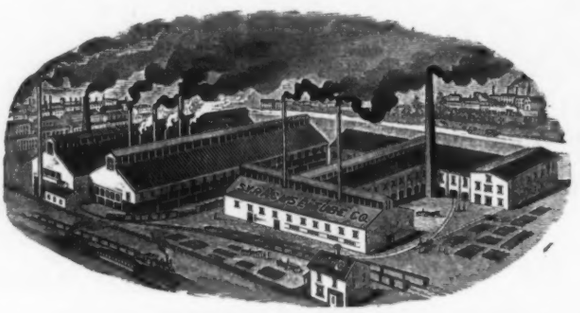

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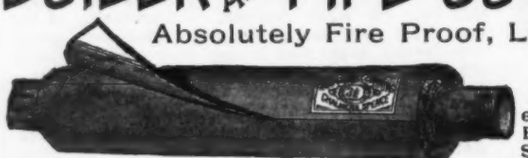

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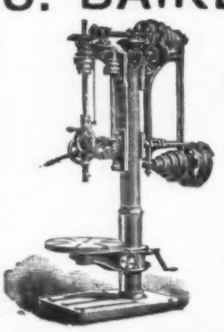

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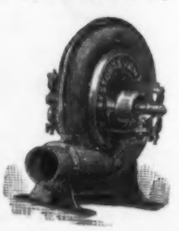

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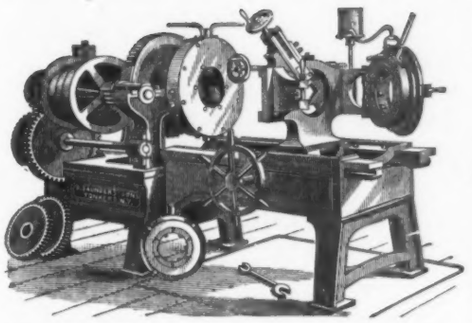

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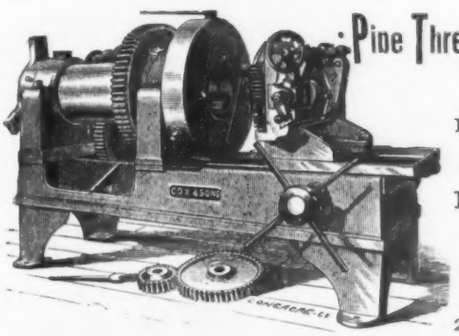

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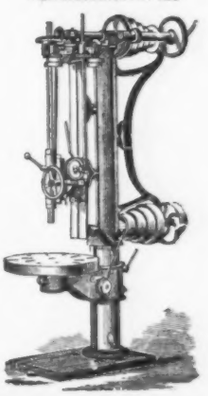

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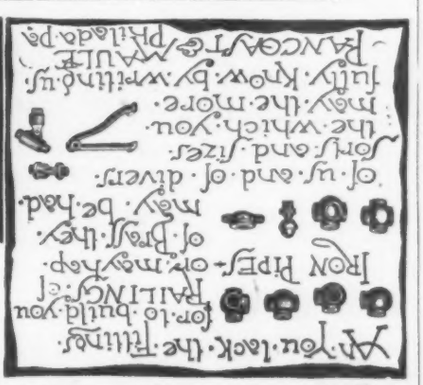

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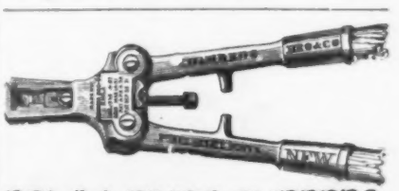

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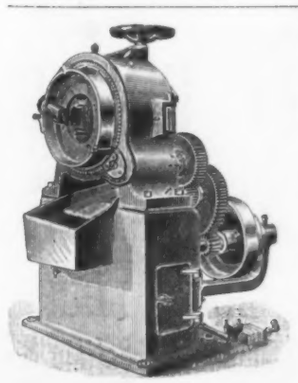

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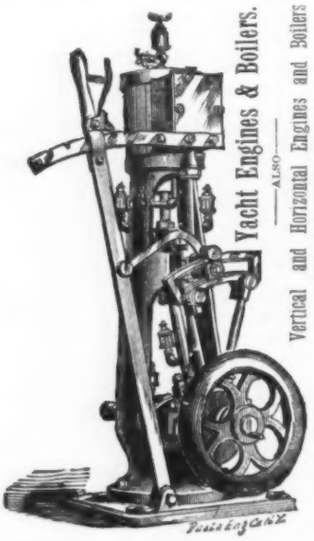

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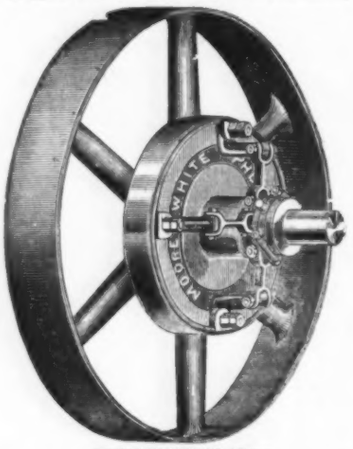

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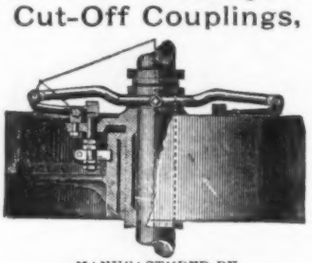

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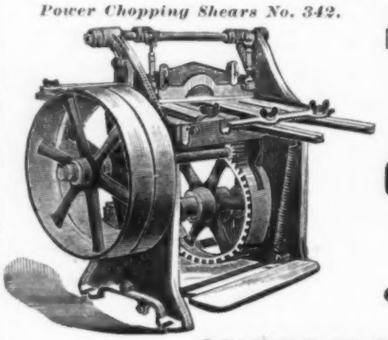

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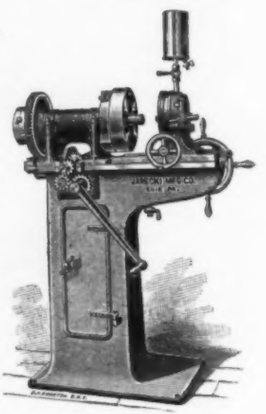

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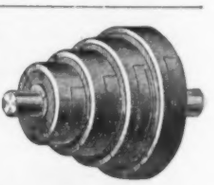

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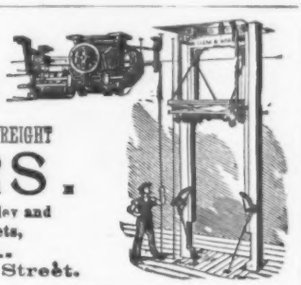

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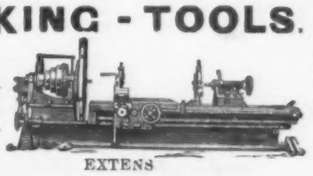

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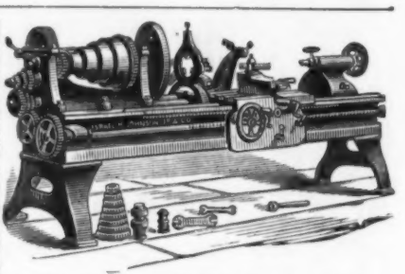

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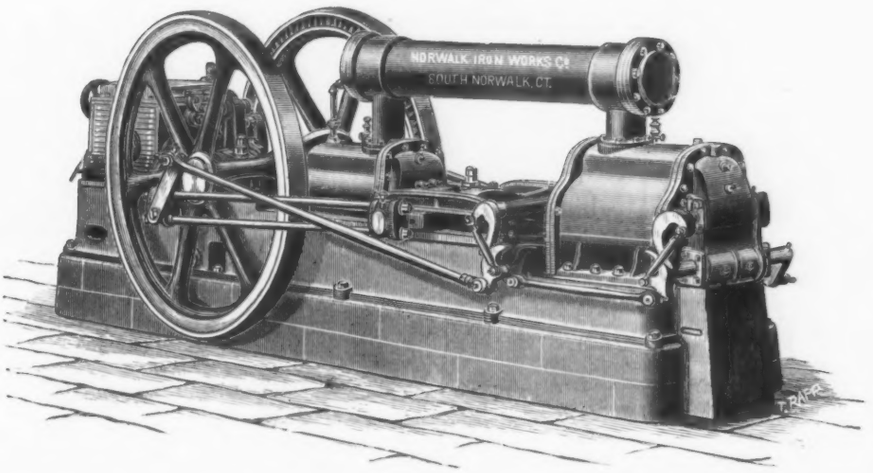

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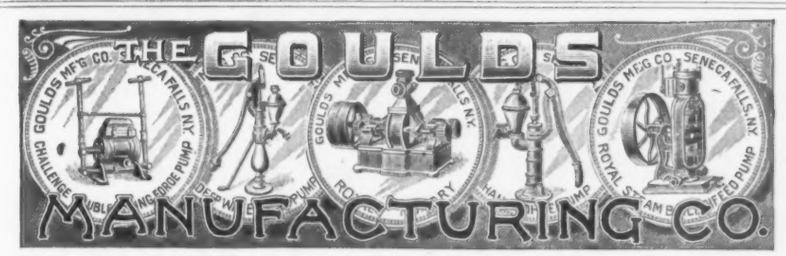

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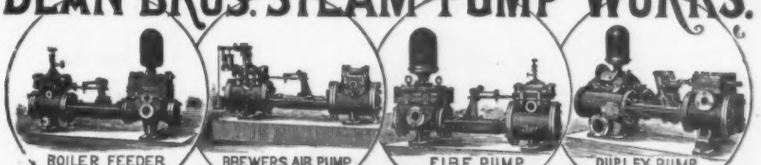

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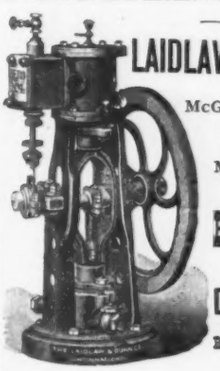

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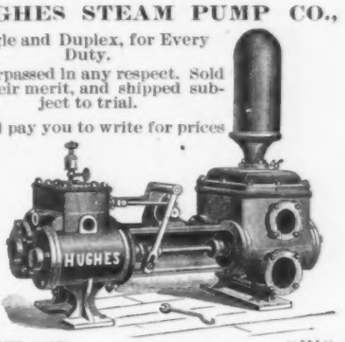

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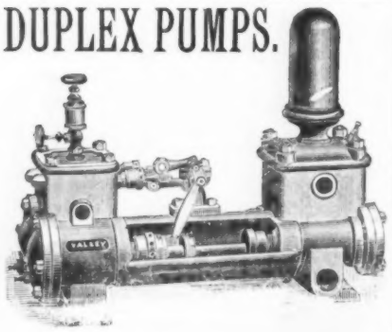

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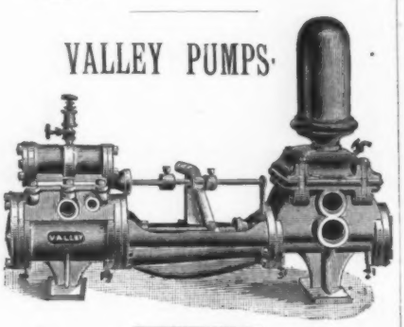

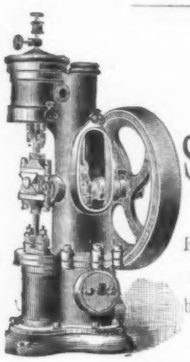

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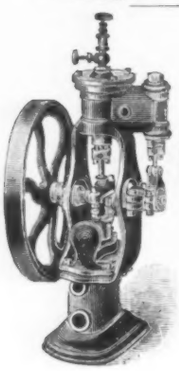

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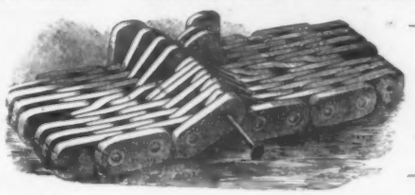

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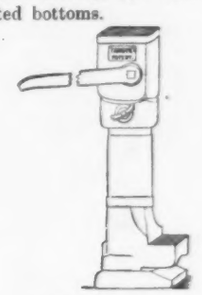

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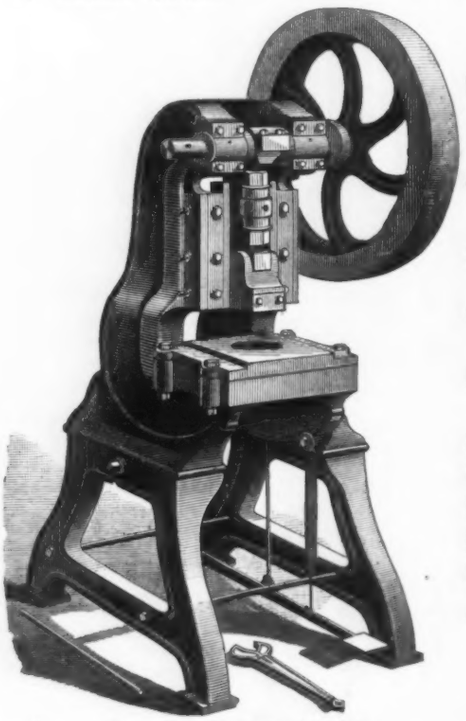

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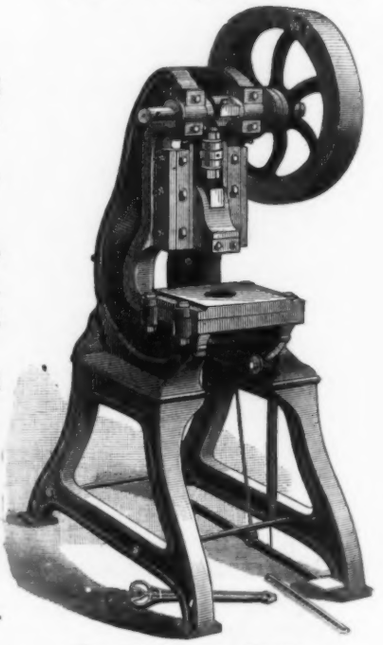

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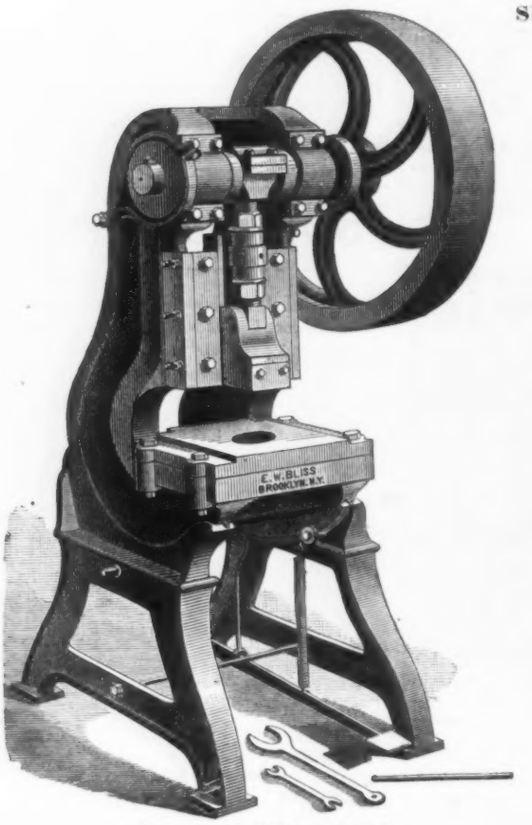

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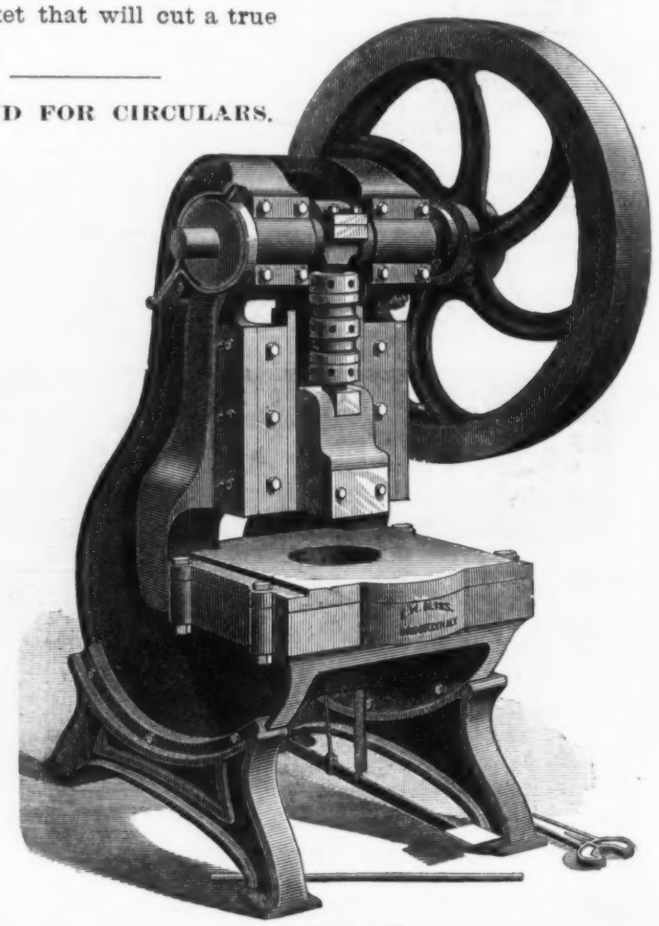

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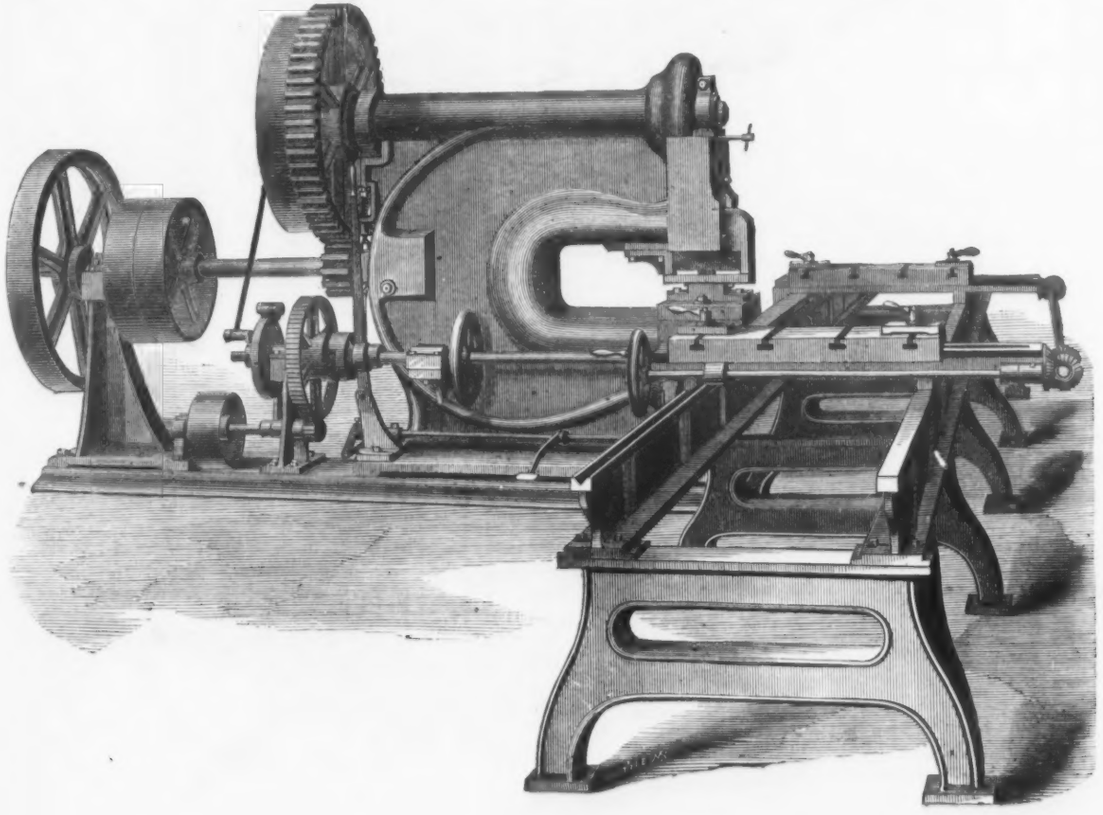

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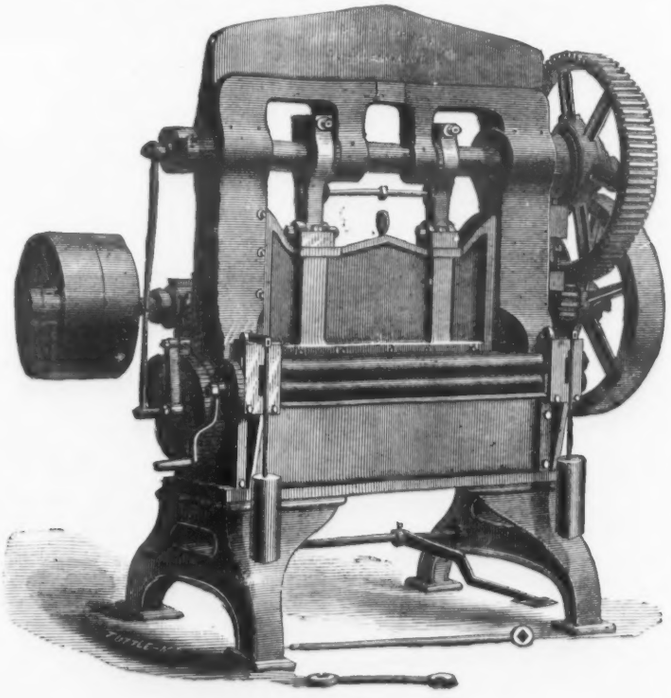

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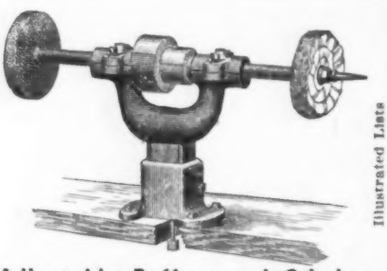

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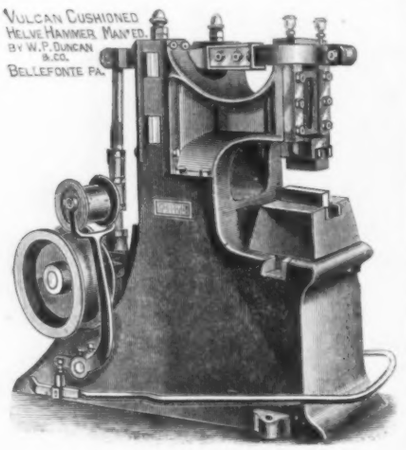

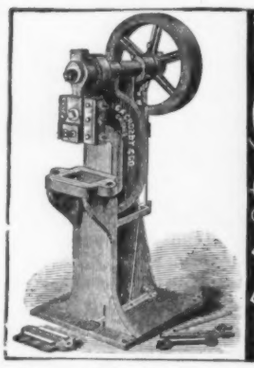

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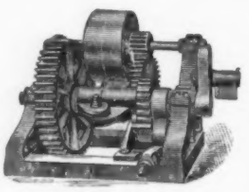

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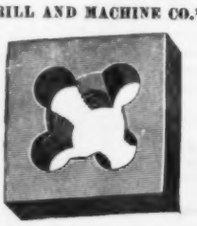

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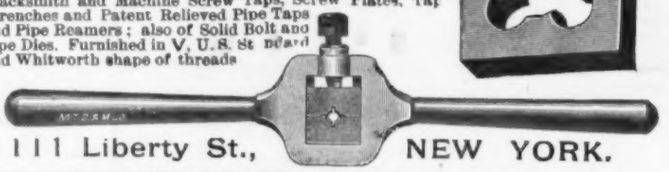

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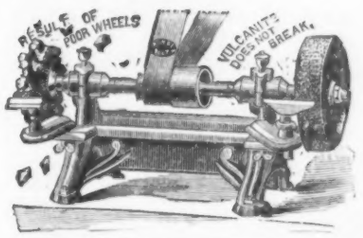

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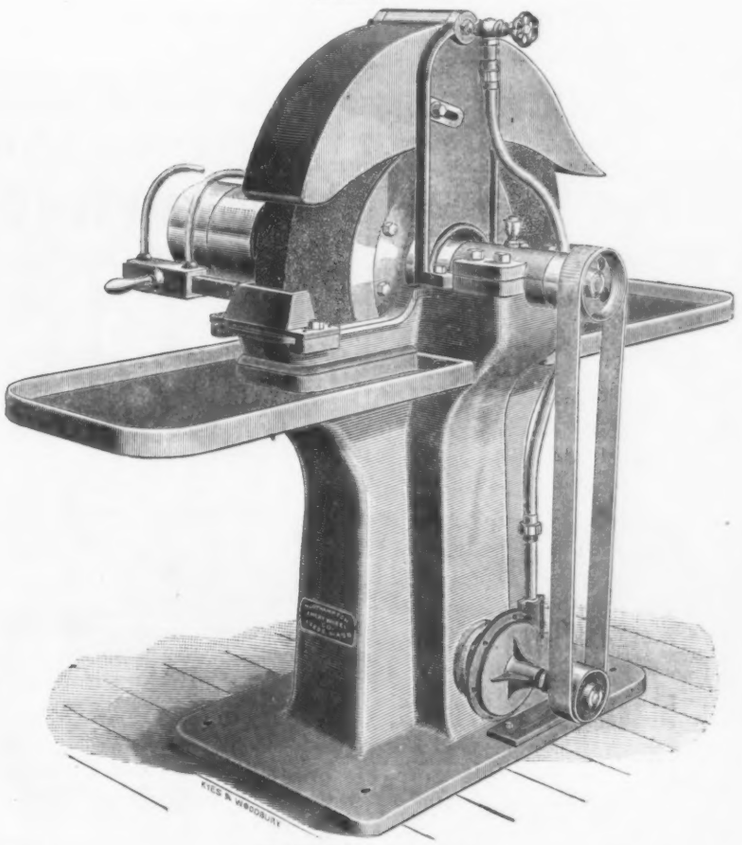

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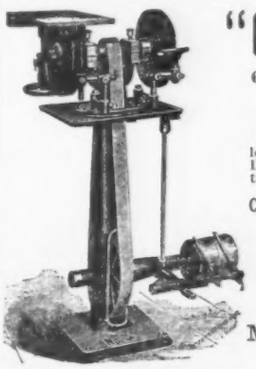

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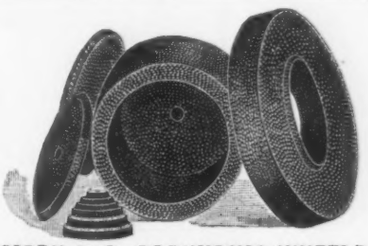

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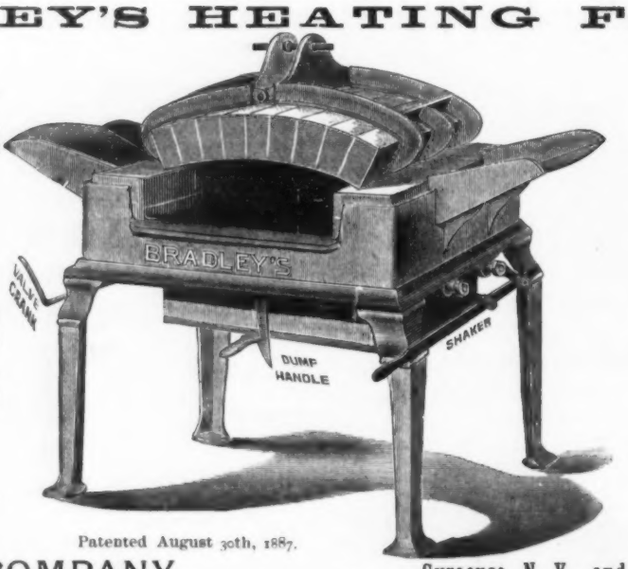

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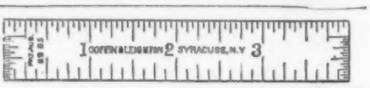

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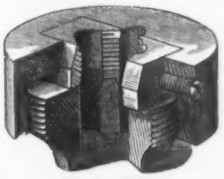

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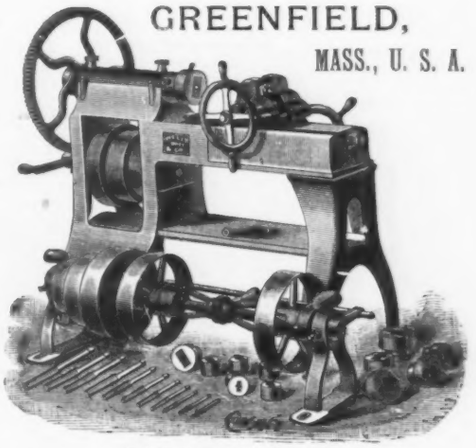

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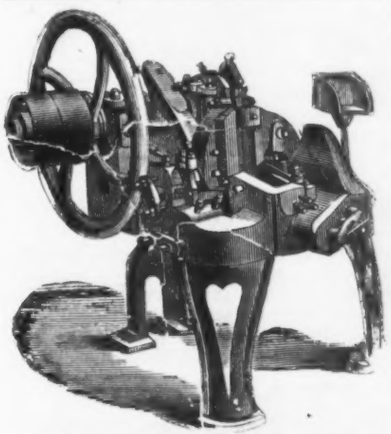

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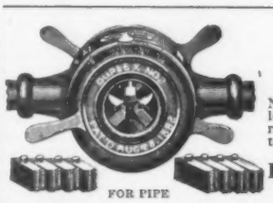

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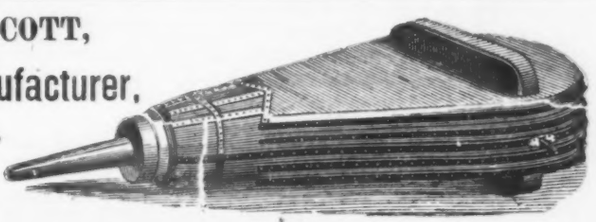

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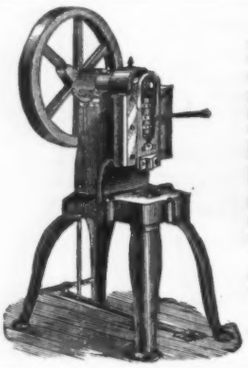

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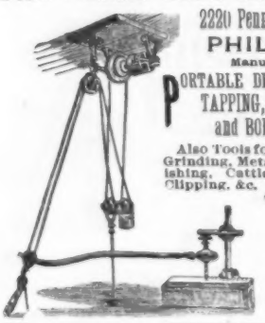

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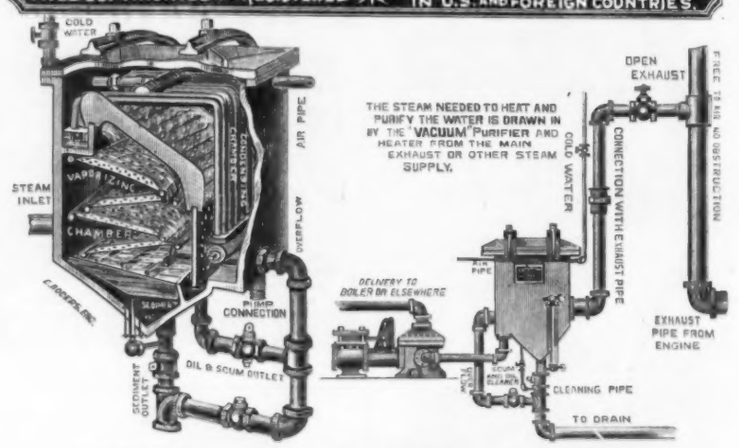

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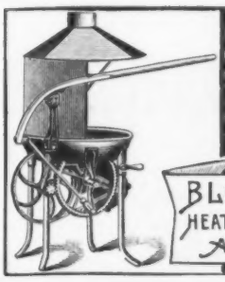

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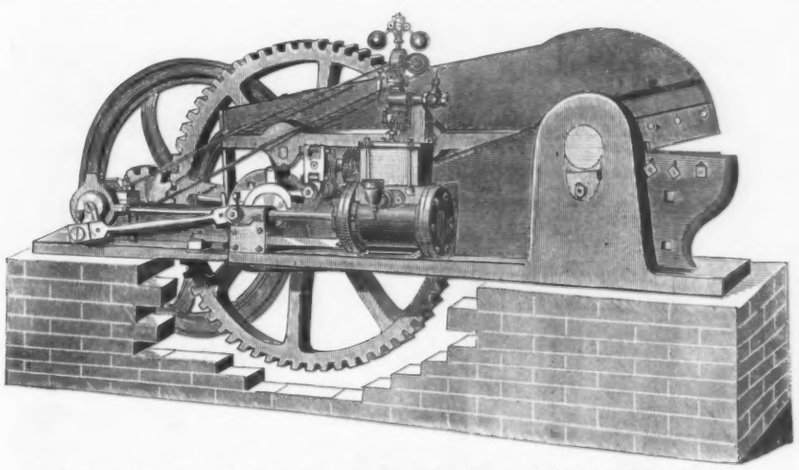

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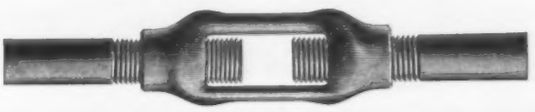
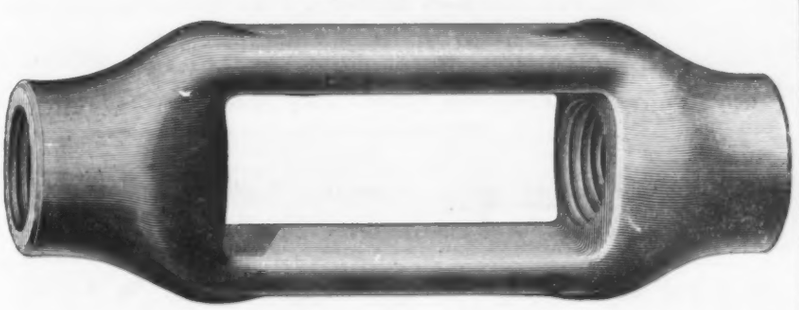
BEST.  CHEAPEST



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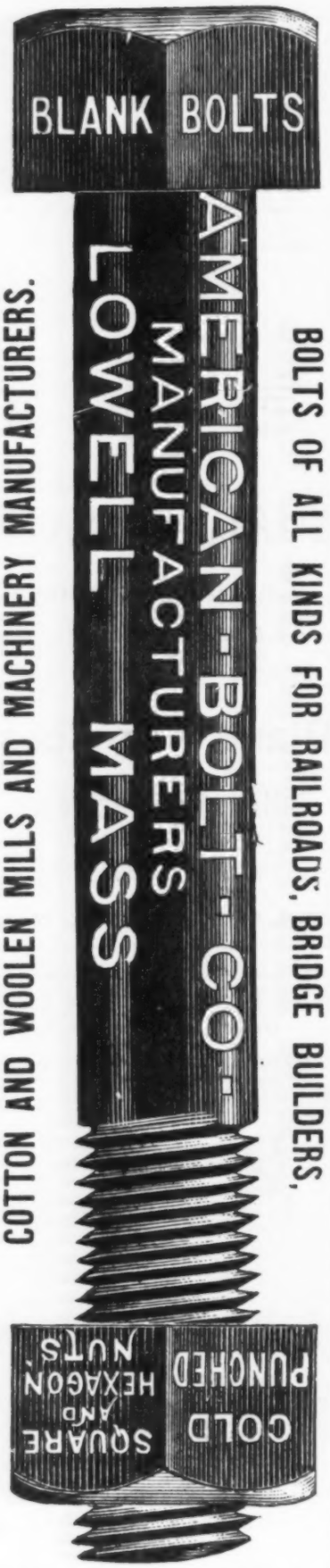

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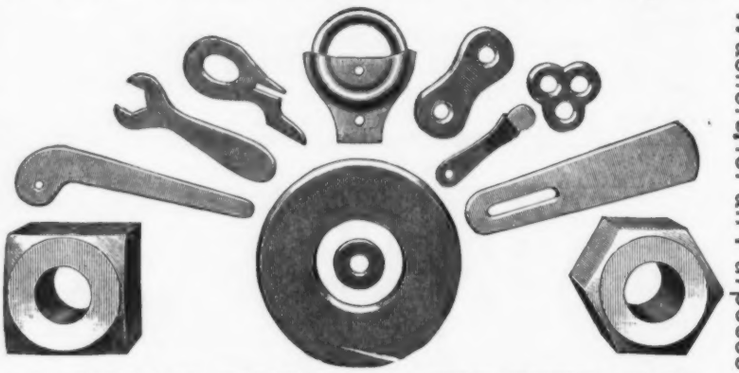

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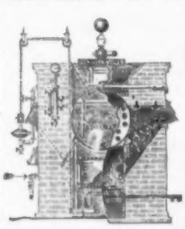

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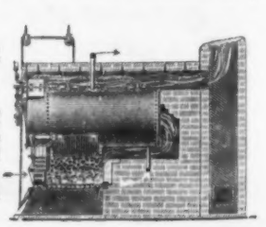

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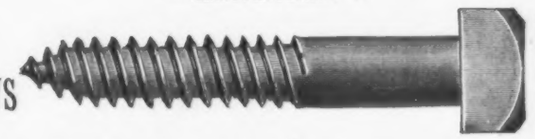

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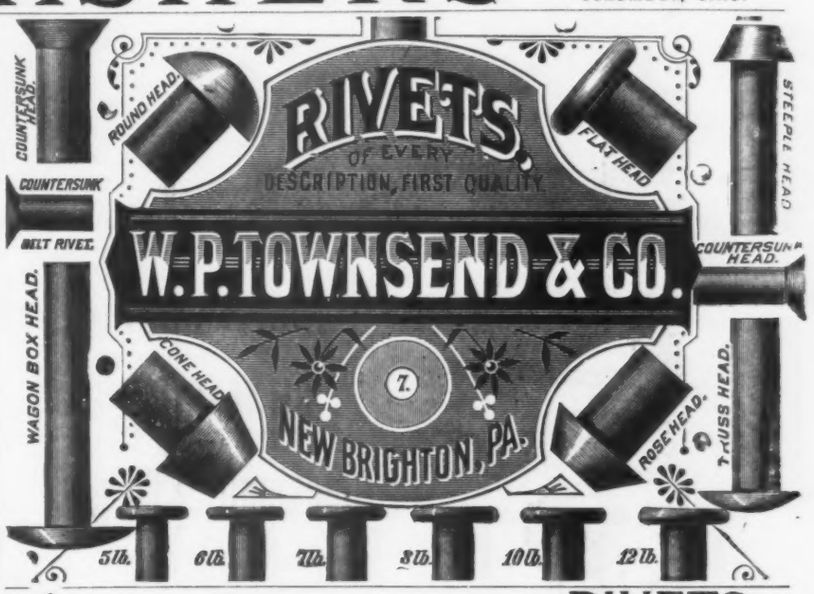

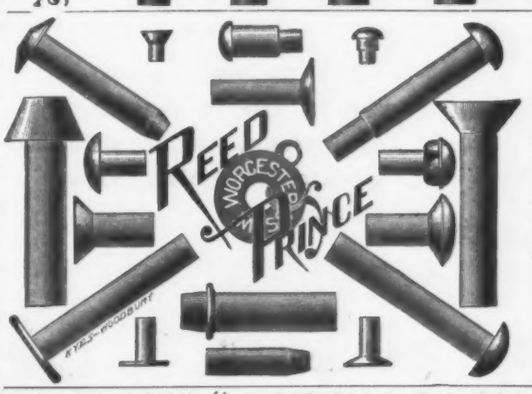

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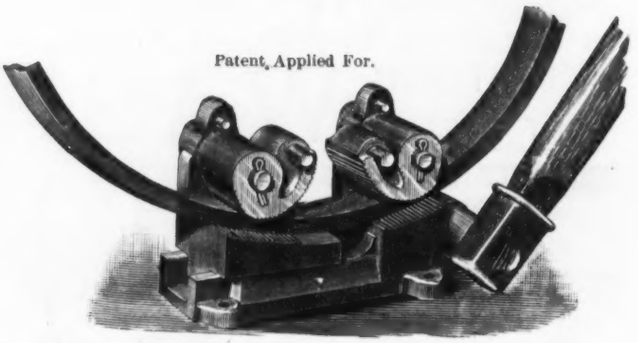
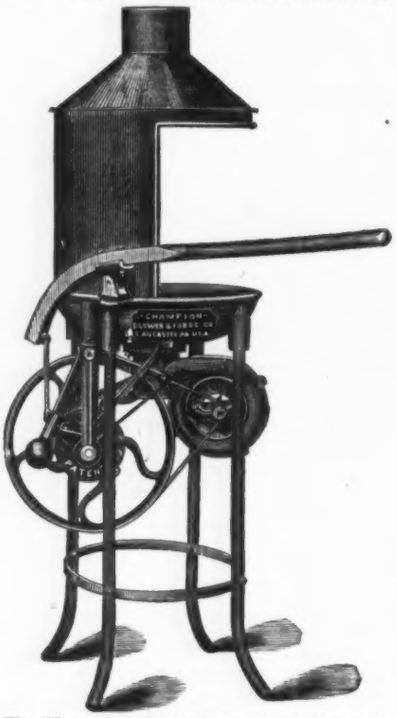
The Champion Portable Lever Rivet Forge.

Patent Applied For.



The Champion Tire Shrinker.



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GENTLEMEN:—We have taken the following tools in exchange for those of our own manufacture, and are in a position to sell them low:

LATHES.—New.

1 15 x 6 Porter Engine Lathe.
1 17 x 8 Muller Engine Lathe.
1 20 x 8 Fifield Engine Lathe.
1 20 x 10 Fifield Engine Lathe.
1 28 x 12 Fay & Scott Engine Lathe.
1 30 x 14 Fifield Engine Lathe.
1 17 x 8 Lodge, Davis & Co. Engine Lathe.
1 19 x 9 Lodge, Davis & Co., Engine Lathe.
1 21 x 11 Lodge, Davis & Co., Engine Lathe.
1 24 x 10 Lodge, Davis & Co., Engine Lathe.
1 each No. 1 and No. 2 Hand Lathes. Lodge, Davis & Co.
1 13 x 5 Turret Lathe, Lodge, Davis & Co.
1 15 x 6 Square Arbor Lathe, Lodge, Davis & Co.

LATHES.—Second-hand.

1 13 x 5 Pratt & Whitney Plain Lathes. Good as new.
1 18 x 8 N. Y. Steam Engine Co.'s Lathe. Good order.
1 19 x 8 Lodge, Barker & Co. Lathe. Good order.
1 20 x 6 Putnam Lathe. Good order.
2 20 x 7 Ames Lathe. Good order.
1 20 x 10 Smith Lathe. Good order.
1 24 x 12 New Haven Lathe. Good order.
1 25 x 13 Phoenix Lathe. Good order.
1 36 x 9 New Haven Lathe. Good order.
1 52-in. x 16 ft. Bement Engine Lathe. Second hand Good order.
1 24 x 10, Mattawan. Good as new.

PLANERS.—New.

1 20 x 20 x 4 Williams Planer.
1 24 x 24 x 6 Pease Planer
1 30 x 30 x 8 Pease Planer.

PLANERS.—Second-hand.

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1 26 x 26 x 6 Bretteli. Good order.
1 30 x 30 x 8 Whitcomb. Good order.
1 36 x 36 x 9 Stevens. Good order.
1 36 x 36 x 13 Stevens. Good order.
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DRILL PRESSES.

1 20-inch Lodge, Davis & Co. Lever Drill. New.
1 20-inch Lodge, Davis & Co. Wheel & Lever Drill. New
1 Lodge, Davis & Co. 25, 28, 32 & 40 B. G., P F Drill. New.
1 25-inch Prentiss Drill. New.
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1 Foot-power Hammer. New.
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Grinders, all sizes. New.
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BARGAINS.

1 set Boiler Maker's Rolls, 8 ft. 3 in.
1 set Boiler Maker's Rolls, 7 ft.
1 16 x 36 Horizontal Engine. Good order.
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1 12½ x 24 Horizontal Engine. New.
1 11 x 18 Horizontal Engine. New.
86 Engines, Horizontal and Vertical, new and second hand, 4 in. to 10 in. cylinder.
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1 Alligator Shear for Boiler Maker.
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1 24 in. x 8 ft. Engine Lathe. Perkins. New.
1 18 in. x 10 ft. " " " "
1 18 in. x 8 ft. " " Wamesit. "
1 18 in. x 8 ft. " " Second-hand.
1 18 in. x 6 ft. Screw Cutting. " "
1 1-Horse Acme Oil Engine.
1 4-Horse Yacht Engine, complete.
1 15 " " " "
1 20 " Horizontal Engine; and 30-Horse Return Tubular Boiler; first-class order; complete; all castings, fittings and stock.

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1 Two-High 18 inch Train.
50 Nail Machines and Patterns—8d, 10d and spike.
1 Steam Hammer and Patterns.
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Second-Hand Machinery in Good Order.

For Sale Cheap.

1 Engine Lathe. 78 in x 11 ft.
1 " 54 in. x 20 ft.
1 " 36 in. x 12 ft.
1 " 24 in. x 16 and 16 ft.
1 " 22 in. x 10 and 12 ft.
1 " 20 in. x 10 and 12 ft.
1 each " 18 in. x 8 and 10 ft.
1 " 17 in. x 8 ft.
1 " " 16 in. x 6, 8 and 10 ft.
1 " " 14 in. x 6 and 8 ft.
6 " " 12 in. x 5 ft.
2 " " 11 in. x 4 ft. and 5 ft.
1 " " 10 in. x 3½ ft. Foot power
1 15 in. x 6 ft. Brass Turret Lathe.
1 14 in. x 5 ft. Brass Turret Lathe.
1 Planer, 20 in. x 20 in. x 4 ft.
1 " 24 in. x 24 in. x 6 ft.
1 " 26 in. x 26 in. x 8 ft.
1 " 30 in. x 30 in. x 8 ft.
1 " 36 in. x 36 in. x 9 ft.
1 " 50 in. x 50 in. x 12 ft.
1 18 x 3 ft. Screw Planer.
1 Shaper, 6-in. stroke. 1 12-in. Shaper, two tables.
1 " each 12, 15, 20 and 26 in. stroke.
1 24 in. Hendey Shaper.
1 Crank Planer. 6 Lincoln Pat. No. 2 Millers.
1 each, 2, 3 and 4 Spindle Gang Drills.
2 each Nos. 1 and 2 Screw Machines. Wire Feed. Pratt & Whitney. Good as new.
1 375-lb. Drop Hammer. Beecher & Peck.
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1 No. 53 Ferracute Press. 1 Nut-Facing Machine.
10 Foot Presses, assorted. 8 Power Presses, assorted.
12 Punching and Shearing Machines, assorted.
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1 Bolt Cutter ½ to 1½ Merriman Adj Head Good order
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1 each 4 and 8 H.-P. Portable Engines.
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2 No. 3½ Stiles & Parker Presses.
1 No. 5 Geared Press Stiles.
1 Bolt Cutter, ¾ in. to 2 in.
2 No. 1 Bliss Foot Presses. 1 12-in. Gear Cutter.
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1 36-in. Band Saw. C. B Rogers & Co.
Also full line of New Machinery.
New York Agency TAYLOR MFG. CO., Engines, Boilers, &c. Correspondence solicited.

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MACHINE TOOLS.

We have for quick delivery and in process of construction:

16 in., 20 in. and 24 in. Lathes.
14 in., 20 in., 33 in. and 49 in. Turret Head Chucking Machines. Screw or Stud Machines with Patent Friction Head, two sizes, 2⅛ in. and 2⅝ in. hole through spindle. Complete equipment of Box Tools and Dies for same.
Improved Center Bolt Cutting Machines.
37 in. and 50 in. Boring and Turning Mills, with single or double heads.
Special Heavy Turret Machines, with feed for Boring and Facing, with trip motion for each movement.
All from recent and carefully prepared designs. Workmanship guaranteed. Critical inspection invited.

Nearly 800 Tools in Actual Use.
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Trains from Grand Central Depot, New York, hourly; time, one hour and thirty minutes.

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4 6 x 17 Horizontal Tubular Boilers.
1 250 H.-P. Sectional Boiler.
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1 26 x 48 Corliss Engine.
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Baker Blowers, Nos. ¼, ½, 1, 2, 4½, 5½ and 6.
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14 in. x 48 in. Corliss Beam.
26 in. x 6 ft. " "
18 in. x 48 in. Greene Horizontal.
One pair Corliss Horizontal. 30 in. x 6 ft., first-class, now running.
New Engines, from 2 H.-P., Vertical or Horizontal.

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6-in. Crank Shaper, B. & P. New.
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24-in. Shaper, Bridgeport. New.
12 in. stroke Crank Planer. Good.
12 in. stroke Trav. Head Shaper. New.
20 in. x 4 ft. Planer, New Haven. Cheap.
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No. 1 Screw Machine, wire feed, P. & W. A 1.
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No. 4 " " " "
No. 5 " Jones & Lamson. "
No. 2 3-spindle Drill, Garvin.
No. 1 and 2 Slate Sensitive Drill. New.
20, 22, 23, 25, 28 and 32-in. Drills. New.
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48-in. Gear Cutter. Cheap.
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2250-lb Steam Hammer, Bement. "
25 lb. Dead Stroke Hammer, Justice, Cheap.

Large line of Engine Lathes, Planers and Drilling Machines in stock. Send for list.

Cold Rolled Shafting in stock, all sizes.
Full line of new Machinery. Write for what you want.

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Special Bargains in Machinery, offered for ready sale during the months of Aug., Sept. and Oct.

One 40 H.-P. Supplee Engine, new.
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One 1½ H.-P. Combined Engine and Boiler.
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One 4 H.-P. Baxter Engine.
One 4 H.-P. Vertical Boiler.
One 6 H.-P. Vertical Boiler.
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One 35 H.-P. Vertical Boiler.
One 60 H.-P. Vertical Boiler.
One 20 H.-P. Horizontal Tubular Erie Boiler
One 25 H.-P. Hor. Tubular Robt. Wetherill Boiler
One 40 H.-P. Horizontal Tubular Boiler.
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One 14 in. Engine Lathe, 6 ft. bed, Ashton Hand.
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One 15 in. Engine Lathe, 5 ft. bed, Harris.
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One 50 in. Boring and Turning Mill.
One Cope & Maxwell Deep well Pump.

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For prompt delivery.

1 72 in. Pulley **TURNING MACHINE.**
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One Second-hand Twiss Automatic Engine 10x20; also new Automatic Engines, from 20 to 10 h.-p., and Vertical Engines, 4, 6 and 8 h.-p.

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This Machine is especially designed for the use of manufacturers of Light Hardware. It drills holes to ⅝ inch in diameter. Each spindle is entirely independent and may be stopped to change or sharpen the drill without stopping the machine or interfering with the other drills. The feed is automatic, can be set to feed any depth of hole, and when through its work is released and the drill returns to its place ready for the operator to change the work and start it again. Address

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MACHINISTS' TOOLS.

1 Planer, planes 22 ft. long, 48 x 38, double heads on cross head
1 Planer, planes 12 ft. 36 in. x 34 in.
1 7-ft. 28 x 28 Planer.
1 5 ft. 24 in. x 24 in. Planer.
1 18 ft. bed, 50 in., Engine Lathe.
2 8-ft. 18 in., Engine Lathe.
1 5 ft. bed 12 in. Reed Lathe.
2 Monitor Head Lathes.
1 9-ft. bed, 16 in., Engine Lathe.
1 Horizontal Boring Mill, 48 in. swing.
1 No 1 Pratt & W. Screw Machine, Wire Feed.
1 No. 2 Farrell Power Press.
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1 2-spindle Edging Machine.
1 6-in. Crank Shaper, A1 order.

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VERTICAL ENGINES,

One 32 in. by 32 in.
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Cylinder Boilers.
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50 Key Seating Machines.
50 Standard 20-in. Drills.
1 Engine Lathe, each 18 in., 20 in, and 22 in.
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1 38 and 1 50 H. P. Automatic Engine.
1 each 10, 15. 20, 25, 30, 40, and 50 H. P. Boilers.
All the above are new and first-class.
The following second-hand Engine and Boilers:
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1 35 H. P. Engine, All the above in No. 1 order.

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Blowing Engine, new and first-class; Steam Cylinder 36 in. diam.; Blowing Cylinder 84 in diam.; Stroke 48 in.; Weight 71 tons. Can ship in ten days' notice.

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Successors to Cuyahoga Steam Furnace Co.,
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SHEARS, ENGINES, BOILERS, FLOOR PLATES, &c.

One Heavy Plate Shear, 48-inch throat.
" Large Lever Shear. Cutting old rails.
" Small " " " scrap iron.
" Rotary " " " strips 5-16 in.
" Large Upright " " tops and bot'ms 1 in
" Small " " " ¾ in
" Upright High-Pressure Engine, 16 x 18 in.
Two Winslow Squeezers. One new,
One Dudgeon Steam Hammer, 18 in. diam., 40 in. stroke.
Upright Tubular Boilers 15 ft. long 60 in diam.
Cylinder Boilers, 20-24 ft. long, 30 in. diam.
Stacks, 30 to 50 ft. long, 30 in. diam.
One Crane (iron) about 5 tons.
One Crane about 5 tons capacity.
Boshes, Steam Piping (cast and wrought iron).
Blast Pipe, Cinder Buggies, Tanks, &c.
Beam Engine, 14 x 30 in.

The above are in good order, and for sale in lots to suit for immediate delivery.

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DROPS AND LIFTERS

bought, sold, or taken in exchange for new.

BEECHER & PECK,
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ROLL TURNING LATHES BLOWER AND ENGINE.

One Single Roll Turning Lathe, 18 in. Roll
" Upright Engine, 6½ in. x 17 in.
" Root Blower No. 7.
All in good order.

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GOOD SECOND HAND TOOLS.

I want to buy for cash good second-hand

LATHES, PLANERS AND DRILLS.

Address " A. B. S.,"

Office of *The Iron Age*, 66-68 Duane Street, N Y

ROLLING AND NAIL MILL MACHINERY FOR SALE.

Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).
One 16-in. Nail Plate Train of three stands of rolls, with pinions, tools and fixtures complete.
One 18-in Muck or Forge Train, two stands of rolls.
One 500-Horse-Power Corliss Beam Engine, with condenser, pumps and other connections.
70 Nail Machines.
3 Spike "
3 Guillotine or Plate Shears
15 Grindstones, fixtures and countershafts.
43 Gould's Patent Nail Feeders.
About 600 ft. Shafting with pulleys; also Lathes, Planers, Drills and all necessary tools to do repairs
All in perfect running order and will be sold cheap, as a whole or in parts. Above now located at Weymouth Iron Works, East Weymouth, Mass.
Enquire of
J. F. ROGERS 101 Milk St., Boston, Mass.
or J. M. LEONARD, Somerset, Mass

FOR SALE.

ONE OF GEORGE H. CORLISS'S UPRIGHT ROLLING MILL ENGINES;

Cylinder, 32 in. x 60 in.; Shaft, 17 in. Diameter, with fly wheel of 25 tons weight and 20-foot diameter fitted to the shaft; *also* 1 Berriman Heater, 4 feet diameter, 12 feet high, with steam and exhaust pipe and fittings for same; *also* 2 Sturtevant Steel Pressure Blowers, 6 ft. diameter; Outlet 20 x 24, with 16 in pulley on each side for 12-in belt. Address

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FOR SALE.

ONE SCREW PLANER,—14-foot Bed; will take in 4 feet between uprights.

Address
SHICKLE, HARRISON & HOWARD IRON CO.
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FOR SALE. A Brown (Fitchburg, Mass.) Engine 20 in. x 48 in., Corliss 18 in. x 42 in.

FRANK McSWEGAN & SONS,
Bridge Store, Dover St. and Franklin Sq., New York.

COIL-BOILERS FOR THE UNITED STATES NAVY.—NAVY DEPARTMENT, Washington, D. C., August 2, 1888.—The Navy Department, having in view the possible decrease in weight of machinery in vessels of war by the use of tubulous, sectional or coil-boilers, has determined to adopt such boilers, if suitable can be found, for a portion of the steam-power of one or more of the vessels about to be built. To this end manufacturers who wish to offer such boilers for use by the Department are hereby invited to furnish plans of the same, adapted to an armored coast-defence vessel, on or before September 15, 1888. Plans must be accompanied by certificates that boilers of the same make are or have been in successful use at sea or on shore. Plans showing the space in the vessel available for boilers, particulars of the duty required and other information, may be obtained upon application to the Bureau of Steam Engineering. The boiler which appears to the Department, after investigation, to be the best for the purpose, taking into account the evaporative efficiency, the dryness of the steam, the weight of the boiler, the weight of the water contained, the accessibility for repairs, the ease of making repairs, the simplicity and interchangeability of the parts, the space occupied, the ease of firing and of regulating the feed, the suitability for working in battery, the capability of long-continued steaming without cleaning, and the durability, will be adopted in the coast-defense vessel above mentioned, provided that the price, which must be stated when the plans are submitted, is satisfactory to the Navy Department. Such boilers as appear to possess merit will be tested by the Navy Department, if the manufacturers so desire, to determine which is the more suitable for the purpose. Manufacturers who wish their boilers to be tested must furnish a boiler of the type of one of those proposed for the vessel and prepare it for test, either at their own works or at such place as may be arranged with the Department. The expense of the test of the accepted boiler will be borne by the Navy Department, and the cost of the fuel used in the test of the second best will also be borne by the Navy Department. All other tests must be at the expense of the parties offering boilers for competition.

WILLIAM C. WHITNEY,
Secretary of the Navy.

FOR SALE, CHEAP, Wire Machines. —6 second-hand Wire Nail Machines. 2 Rattlers or Polishers, 1 Emery Wheel, stand and wheels complete; 1 Engine Lathe, nearly new, for making dyes, and in first-class condition. Have been run about eight months, and of the latest pattern. The machines will cut from ½ in. to 3½ in. nail. Very strong and durable machines, and of latest improved style. For particulars please refer to me. All in running order. GEO. A. CARTER, Box 434, Brockton, Mass.

FOR SALE AT LOW PRICES.—1 each, 12 and 16-in. Turret Lathe, Warner & Swazey, good order. 1 2-inch Automatic Turret Lathe, Frech, new, $150. 1 2-Spindle Drill Press with Adjustable Spindles, $50. 1 No. 2 Garran Hand Feed Miller, good order, $75. 1 Power Punch, punches ⅛ x ¼, new, $175. 2 Large Screw Punches, good order and cheap. 1 3-Spindle Horizontal Nut Tapper, good order, $75. 1 36-inch Car Wheel Borer, good order, $250. 1 36-inch Pulley Turning Lathe. 1 Seymour Pulley Balancing Machine. A large assortment of Lathes, Planers, Shapers, etc. New and second-hand. Send for catalogue.
W. H. ROBERTSON, 51 So. Canal St., Chicago, Ill.

FOR SALE—IMMEDIATE DELIVERY.

One new Star Tool Co.'s Cutting-off Machine, capable of cutting 5-in stock.
Two new Star Tool Co.'s Traverse Drills.
Twenty new modern Lathe and Planer Chucks, popular makes, all sizes, at large discounts from manufacturers prices.

DIAMOND MACHINE CO.,
Chicago, Ill. Providence, R. I

MR. HARDWARE

dealer and traveling man, take due notice that I give 20 per cent. from my regular established prices on Boilers and Engines. Write for Catalogue. Also the largest stock of Drive Well Points and Tools and Pumps in the country.

H. M. SCIPLE,
Bordentown, N

ENGINES AND BOILERS.

One 18 x 48 Horizontal Corliss Engine.
" 16 x 32 " Wright "
" Copeland & Bacon Double Hoisting Engine, 8½ x 10.
Two Horizontal Tubular Boilers, 80 H.-P.
One No. 6 Knowles Steam Pump.
" Worthington Duplex " 7½ x 4½ x 10.

D. B. CRUICKSHANK,
243 Dyer St., Providence, R. I.

FOR SALE.

Four 75 Horse-Power Second-Hand Boilers, with Hartford Steam Boiler Insurance Company certificate to carry 80 pounds. Price $350 each.

S. M. YORK,
42 and 44 South Water street,
Cleveland, O.

FOR SALE,

CHEAP.

1 Pair 20 in. x 48 in Corliss Automatic Engines.
1 12 x 42 Green Automatic Engine.
1 12 x 24 in. Horizontal Engine.
1 8 in. x 15 in. " " New.
1 5 in. x 10 in. Horizontal Engine.
1 10 H.-P. Horizontal Engine.
1 15 H.-P. High Speed N. Y. Safety Engine.
1 6 H.-P. Baxter Engine and Boiler.
1 4 H.-P. Portable Engine and Boiler.
1 6 Horse-Power Upright Engine.
1 12 Horse Upright Engine.
1 5 x 12 Double-Drum Hoisting Engine and Boiler.
2 5 ft. x 16 ft. Horizontal Tubular Boiler.
1 4 ft. x 14 ft. Horizontal Tubular Boiler.
1 40 H.-P. Locomotive Boiler.
1 36 in. x 11 ft. New Locomotive Boiler.
1 15 Horse Upright Boiler. Nearly new.
3 15 H.-P. New Upright Steel Boilers.
2 New Steel Yacht Boilers.
4 16 in. x 6 ft. Engine Lathe.
1 14-in Stroke, Hewes and Phillips Shaper.
1 36 in. Back-Geared Drill. Self-Feed.
1 Ames 4-Spindle Drills.
1 Pratt & Whitney 4-Spindle Drill.
1 Double-Spindle Milling Machine.
1 12 in. Heavy Slotting Machine.
1 4 in. Morris & Tasker Pipe Threading Machine.
1 set Rubber Grinding Rolls.
6 Tanks, 8 ft. x 5 ft. x 5 ft. 3 in.
Nos. 3, 4, 5 and 6 Woodward Steam Pumps.
4 4 ft. Burr Mills, Complete.
1 Bogardus Mill.
12 Contractors' Side-Dumping Cars.
3 Ingersoll Rock Drills.
2 Guild & Garrison Air Pumps.
2 Large Vulcanizers or Digesters.
3 Jacketed Kettles and Tanks.

ROBT. J. GRAY,

131st St. and Fourth Ave., New York.

Valuable Manufacturing Property

FOR SALE.

The real estate and buildings now occupied by the Watertown Steam Engine Co., of Watertown, N. Y., will be offered for sale. The property covers about four acres; has an unfailing water power on the Black River estimated at 225 h.-p. Consists of machine shop, foundry, boiler shop, blacksmith shop, store houses and tenements. The buildings are equipped with line shafting, and could be adapted to a large variety of manufacturing purposes. Moderate cost of labor, combined with low freight rates and nearness to raw material, with an abundant water power, make Watertown an exceptionally good point for manufacturing. It is essentially a manufacturing town.

The property can be divided and sold in parcels if desired,

Address WATERTOWN STEAM ENGINE CO., Watertown, N. Y.

---

80 H.-P. Vertical Engine; first-class order.
20, 30 and 50 H.-P. Horizontal. " "
25 H.-P. Portable Engine and Boiler.
Double 6-in. Hoisting Engine and Boiler.
Single 8-in. Hoisting Engine and Boiler; first-class order.
4 H.-P. Otto Gas Engine; first-class order.
33 x 11 ft. Planer.
" "
25 in. x 12 ft. Screw-Cutting Lathe; first-class order.
20 in. x 8 ft. Screw-Cutting Lathe; new.
18 in. x 8 ft. Screw-Cutting Lathe; new.
15 in x 6 ft. Screw-Cutting Lathe; new.
14 in x 6 ft. Screw-Cutting Lathe; new.
Engine Boiler, Rock Drills, Chain Elevator and Conveyers.

FRANK TOOMEY,

131 N. 3d St., - Philadelphia, Pa.

FOR SALE.

One Second-Hand Daniels Wood Surface Planer. All in good order. Nearly new.

34-inch wide between uprights, 12-foot table, with 6-foot extension.

THE R. A. BELDEN CO.,

New Haven, Conn.

FACTORY LOCATIONS.

Correspondence invited from manufacturers seeking new locations, or from parties wishing to engage in manufacturing enterprises.

Full information given regarding the many advantages offered by our city as a manufacturing centre, among them being 16 lines of railroads; coal at 50 cents per ton, &c., &c,

Address,

J. E. CLAREY,
Acting Secretary,
The Commercial Exchange,
Des Moines, Iowa.

Auction Sale of Machinery, &c.,

ILION, N. Y.

The undersigned, receivers of E. Remington & Sons, will sell at public auction, at the Canal Warehouse, on Friday, September 14, 1888, commencing at 1 o'clock P. M., a lot of valuable machinery, consisting in part of 5 and 10 arc light dynamos, Remington system, all new and first-class, trip hammer, sturtevant and other fan blowers, bayonet rolling and finishing machines, gun and pistol barrel drilling, turning, boring, rifling, polishing and leading, circle, face, clamp and other milling machines, drill presses, wood planers, &c., comprising about eighty pieces, many of which are new and first class. Also together with other miscellaneous articles, including farming implements, the fine show case or booth used for displaying the Remington manufactures at the New Orleans and St. Louis Expositions. This is tastefully and elaborately designed, made in sections, and packed in convenient cases for shipment. The sale will include such of the property described in our circular list of July 10th, as shall remain unsold at date of sale.

ADDISON BRILL,
ALBERT N. RUSSELL, } Receivers.

FOR SALE—CUPOLAS AND TOOLS.

One Foundry Cupola, shell 28 in. diam., melting capacity one or two tons per hour. Price $50.
One Cupola, shell 46 in. diam, melting capacity three to four tons per hour. Price $100.
One D. W. Pond Heavy 42 in. x 24 ft. A1 Lathe, nearly new. Price $1500.
One 7 ft. Warren Universal Radial Drill, good order. Price $650.
One 13 in. Heavy Slotter, good order, Price $700.
One Steptoe 15 in. Shaper, A1 order. Price $225.
One 50 H.-P. second-hand Ide Automatic Engine, good order. Price $500.
One 80 H. P. new Ide Automatic Engine with Corliss style cross head. Price $1000.

A. L. Ide & Son, Springfield, Ill.

FOR RENT.

Three-story factory, with or without power, situated in Philadelphia, 78 x 100 ft. Within one block of Penna. R. R. Depot, one block of B. and Ohio Depot, three blocks of Delaware, three blocks of European Steamers, half mile of Southern and Eastern Steamers. An excellent site for tinware or kindred business offering unexcelled advantages for shipments and cheap labor. Address "X. Y. Z.," Lock Box 1086, Philadelphia.

FOR RENT.

VALLEY FORGE MILL AND WATER-POWER

With new Dam and Flood Gates,

situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.

For particulars, address

J. B. CARTER, Hardware Manfg. Agent,
504 Commerce St. Philadelphia.

FOR SALE.

75 Tons Stove Plate.
100 Tons Machinery Iron.
Also Old Iron and Metals of all kinds.

PETTIS & HIGGINS,
301 Fountain St., Providence, R. I.

FOR SALE.—A first-class Boiler and Sheet Iron Business in a thriving Western city of 100,000 inhabitants. Shop has been in operation eight years and has a growing and profitable business which can be largely increased. Good buildings, power tools, and first-class location on R. R. track. Good reason for selling. Correspondence and investigation from parties meaning business solicited. Address

"WESTERN CITY,"

Office of *The Iron Age*, 66-68 Duane St., N. Y.

FOR RENT!!! "Water Power," "Water Power."—The nearest available water power to New York City at Boonton, New Jersey. Constant all the year around! This magnificent water power will be leased in small or large quantities to suit the tenant. Suitable buildings erected for all kinds of manufacturing purposes. Splendid shipping facilities! On the line of railroad and canal. Only 50 minutes from New York City by train. This power will be leased at a great reduction on steam. Address LORD ESTATE, 68 Wall Street

---

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND HAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

60-INCH LATHE WANTED AT ONCE.

FOSDICK & PLUCKER,
SIXTH and CULVERT STS., CINCINNATI, OHIO.

FOR SALE.

AN UNUSUAL OFFER.

An old established Hardware Business doing the leading wholesale and retail trade in one of the best towns in Minnesota. This is an opportunity seldom offered. Reason for sale, death of proprietor. Address

H. V. RUTHEFORD,
Attorney-at-Law, St. Paul, Minn.

FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock, Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85 two stories. Warehouse, 22 x 30, two stories in rear. Does a large and paying business, which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade. Address

W. L. HAY & SON,
Iowa Falls, Iowa

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia please address

J. B. CARTER,
Hardware Manufacturers' Agent.
504 Commerce Street, Philadelphia, Pa.

FOR SALE.

Clean stock of Hardware; will invoice about $7000; in the best city in Central Nebraska; population, 15,000; terms, one-half down, balance to suit purchaser. This is one of the finest arranged stores in the State, and is so neatly constructed its attraction will draw trade. Correspondence solicited. Address

P. S. BURGER,
Hastings, Neb.

FOR SALE.—A COMPLETE RETAIL STOCK OF BUILDERS' HARDWARE AND TOOLS. Store located in a flourishing city of 150,000 inhabitants in the Northwest. Has the largest and best trade in the city; business last year $90,000. Stock will inventory from $30,000 to $35,000. Good reasons given for selling. Address

"MINNESOTA,"

Office of *The Iron Age*, 66-68 Duane Street, N. Y.

WANTED.

Hardware Specialties to manufacture on contract. Good Patents in our line bought or controlled on Royalty. Local Agents and Canvassers wanted everywhere for our Specialties. Address all correspondence to

W. R. BAKER & SON,
Manufacturers of Hardware Specialties,
Watertown, N. Y.

STEEL PLATE.

For Sale, a lot of Steel Plate 5-16 in. to ½ in thick up to 108 in. wide; will shear in size and shapes to suit.

THOMPSON C. GILL & CO.,
210 So. Third St., Philadelphia.

AGENCY WANTED

OF

WIRE NAIL MILL

For New York, New Jersey and New England States.

Address "D. G.," Box 91,
Office of *The Iron Age*, 66-68 Duane St., N. Y

AGENCIES WANTED.

Two young men, energetic, reliable and good hardwaremen, solicit correspondence with manufacturers wishing to establish agency or branch in Chicago. Would help carry stock of first-class staple line. Address

"H. & G.,"

Office of *The Iron Age*, 95 and 97 Washington street, Chicago.

NOTICE TO MANUFACTURERS.

A young business man, with thirteen years of experience, having passed through every department to a partnership in a well-known firm engaged in the metal trade, is open to form a new connection, and solicits correspondence with manufacturers or others desiring to establish a branch house or agency in New York.

Address "CRESCENT,"
P. O. Box 3249, New York.

TO HARDWARE SALESMEN.

Sample of our pocket hone with discounts for five 2-cent stamps. Everybody buys them.

BED ROCK EMERY WHEEL CO.,
Gloucester, Mass.

AN EXCELLENT OPPORTUNITY.

A Profitable Scrap Iron, Rag and Metal Business for Sale or Partner Wanted.

The rag, iron and metal business sucessfully conducted by S Simons & Son since 1870 at Detroit, Mich. Owing to the death of Mr. S. Simons and the inability of the surviving partner to give the necessary attention, this offer is made. The property used for that business consists of large yard Nos 365 to 371 Atwater St., having best R. R. facilities, a massive four-story stone and brick building and other buildings and everything necessary to conduct the business, constituting the best equipped plant in the country for that business, together with the good will of a large established trade. Will be sold for the lowest value of the property, or a suitable partner, a smart business man having a good reputation and knowledge of the business, will be accepted. For particulars address to

S. SIMONS & SON, Detroit, Mich.

Bit Brace Chuck Patent for Sale.

Entirely new principle. Adjusts itself instantly to all sizes of Bits, and holds them securely. Can be applied to any good brace. Will send model to interested parties. None but principals dealt with. Address,

A. D. MOULTON,

Bridgeport, Conn.

Fire Clay for Sale or Lease.

Tract of 320 acres near Cumberland, Md. 2½ miles down grade to Pittsburgh and Connellsville and Penna. R. R's. Coal on property. Opening showing quality and quantity of Clay and Coal. For samples, information or inspection of property apply to

ROBERT R. HENDERSON,

Cumberland, Md.

WANTED, LOCAL

Agents and Traveling Men to sell the most complete stock of Boilers and Engines, Drive Well Points and Tools and Pumps in America.

H. M. SCIPLE,

Bordentown, N. J.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to

ROBERT R. HAYDOCK & Co., and E. BISSELL & Co

WHOLESALE

HARDWARE AUCTIONEERS,

12 Murray St. and 15 Park Place, N. Y.

Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

DIXON'S—Using Sticky, Pitchy Gurry for Gearing has gone out of date. Graphite Grease is the modern lubricant. The fats must be pure, and the graphite perfected. A perfectly reliable article is made by the

JOS. DIXON CRUCIBLE CO.,

JERSEY CITY, N. J.

One-quarter interest in a manufacturing company for sale very low.

Address,

JOHN BROWER,

P. O. Box 1423,

New York.

THE BUSINESS heretofore conducted by Porter & Wooster, as dealers in carriage hardware, is offered for sale, and affords an excellent opportunity for any one who wishes to engage in the carriage hardware business in Boston. This does not apply to their manufacturing business, in which each partner will continue separately. Any one desiring to purchase may apply to

F. V. WOOSTER,
68 Beverly street, Boston.

PRICE BOOKS.

LARGE SIZE, 500 Pages, 6 x 9½ in. each, $8.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.

Send for Circulars.

B. LAMBERSON,

PORTLAND, OREGON.

FOR SALE.

Wire Mill Machinery.

Enquire for particulars of the

LOVELL MFG. CO., Limited,

Erie, Pa.

WE have at our Buffalo store, 415 Hamburgh street, a number of second-hand Locomotive, Upright and Horizontal Boilers, with good flues and in good serviceable condition, which we will sell at a sacrifice.

For further information call or address above number, or to

P. J. McARDLE & CO.,
Cor. Church and Arch Sts.,
Albany, N. Y.

Paris Exhibition of 1889.

The undersigned, late Managing Engineer and Director of one of the largest works in France, and having a long practical experience in Machinery, Metallurgy and Industrial Enterprises as well, will be pleased to represent firms in the United States, who propose to exhibit their productions and inventions at the forthcoming "Exhibition." References by permission to Messrs. PHILIP S. JUSTICE & CO., 14 N. 5th St., Philadelphia; A. THEO. CHUR, Esq., 88 Potter Building, New York; EMILE LHOMME, 50 Rue St. Placide, Paris.

WANTED.—To buy a Tapering machine.

Address, THOMPSON C. GILL & CO.,
210 South Third street,
Philadelphia.

FOR SALE.

Half interest in a paying manufacturing establishment, consisting of machine shop, foundry and blacksmith shop, &c. Business now earning good interest on money. Tools in excellent condition. Shops run overtime all spring and summer. This interest is part of an estate, and is to be closed out. Address

J. H. WHITING, Ex.,
Mt. Pleasant, Iowa.

FOR SALE.

Complete plant for the manufacture of tinware, plain and decorated. Lease of building for five years upon reasonable terms. Apply to

W. N. VANDERHOEF,

Assignee of Hine & Co.,

13 Doyer St., New York.

NOTICE.

We have appointed Mr. Chas. C. Loring, No. 4 Liberty Square, Boston, Mass., our agent in place of Mr. A. G. Tompkins, for the sale of our beams, channels, angles, tees and plates in the Eastern States, and any orders entrusted to him will receive our best attention.

POTTSVILLE IRON & STEEL CO.,
Pottsville, Penn.

WE have on hand for quick delivery:

36, 30 and 25 inch Planers.
48, 37, 36, 32, 30, 28, 25, 20, 19, 16 inch Screw-cutting Lathes.
22 and 36 inch, 28 and 50 inch, 36 and 60 inch, 48 and 72 inch Screw-cutting Extension Lathes.
4 sizes Multiple Drills.
3 " Radial "
6 " Vertical "
3 " Suspension "
2 " Lever "
Automatic Gear Cutting Machines.
Double Chain Screw Pulley Blocks. Overhead Railway. Gear cutting a specialty.
EDWIN HARRINGTON, SON & CO.,
North 15th St. and Penn. Ave.,
Established 1867. Philadelphia, Pa.

FOR SALE, IN CENTRAL CALIFORNIA.—Intending to retire from active business, I offer for sale my clean and desirable stock of Hardware, Agricultural Implements, Paints, Oils, &c., &c. The business is now and has been a profitable success for more than 20 years. It is located in the delightful climate of Santa Clara County, Cal., which for health, school and social advantages is unequalled in the United States. $10,000 to $12,000 capital required. For further particulars, address "CALIFORNIA," office of *The Iron Age*, 66-68 Duane St., New York.

TO LET.

Office and Sample Room.
One half of Basement. All of Subcellar
HUMASON & BECKLEY MFG. CO.,
80 Chambers Street, New York

EXCELLENT BLACK COPIES of *anything written* or *drawn* with *any* Pen (or Type Writer) by the Patent

AUTOCOPYIST Lithography.

Only equaled by Specimens free.

AUTOCOPYIST CO., 166 William St. New York

FOR SALE.—Hardware Store in town of 1000 inhabitants, doing good business; $2500 stock. Good reason for selling.

Inquire of
McNABB BROS.,
New Willington, Pa.

A RARE OPPORTUNITY.—Coke, pig iron furnace, now in blast with 3¼ miles of railroad connecting with trunk line, 2 locomotives and 19 cars; 51 beehive coke ovens, store, dwellings, 75 double and single tenements and all buildings required. 1305 acres all underlaid with superior quality of coking coal, and iron ore bed on 700 acres. Everything in good working order and offered only on account of owner's advanced age. (Folio 3706.) PHILLIPS & WELLS, Tribune Building, New York.

TUBULAR BOILERS.

For sale, three 60 H.-P. Vertical Tubular Boilers (will guarantee 80 lbs. or over, Hartford inspection). Good as new. Only used six months. $300 each on cars, cash or exchange for other material.

Address "BOILER," Office of *The Iron Age*, 202 South Fourth street, Philadelphia.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

WANTED.—A practical Hardware Bronze Plater. Please state experience and salary expected. Address "MANUFACTURER," office of *The Iron Age*, 77 Fourth avenue, Pittsburgh, Pa.

WANTED.—Experienced man to take charge of receiving and shipping in large tinware factory. Address "RELIABLE WORK," office of *The Iron Age*, 66-68 Duane St., New York.

WANTED.—An experienced hardware salesman well acquainted with Western and Middle New York State hardware retailers. One thoroughly posted and having a good trade may learn of a situation. Address at once, "HARDWARE," P. O. Box 1385, New York.

WANTED.—A good salesman, traveling among the hardware jobbing trade in the Western States, to sell a line of tools on commission. Address "TOOLS," office of *The Iron Age*, 66 and 68 Duane Street, New York.

TRAVELING SALESMEN WANTED.—COMPETENT, ENERGETIC AND PUSHING SALESMEN to sell a line of special goods well known to the Hardware, Stove and House-Furnishing Trade; must be familiar with the Hardware Business, and experienced in selling goods on the road, and furnish first-class references. Other lines not conflicting can be taken. Liberal commission. Address "Box 141," Manchester, N. H.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

YOUNG MAN (21) desires a position with good Hardware house as in or outdoor salesman. Several years' experience and first-class references. Address "G. F. D.," Box 76, office of *The Iron Age*, 66 and 68 Duane St., New York.

WANTED.—Position as Practical Bar or Guide Mill Roller. Address "ROLLER," Box L, office of *The Iron Age*, 77 Fourth avenue, Pittsburgh, Pa.

POSITION WANTED.—As Manager, Buyer or Commercial Traveler, by gentleman of many years' experience in retail hardware. Or would accept position with concern carrying $5000 or $10,000 stock, with prospect of buying same. Moderate pay. Address "COMMERCIAL TRAVELER," office of *The Iron Age*, 66 and 68 Duane street, New York.

A YOUNG MAN desires a position with a malleable iron establishment as Annealer. Is familiar with the mixing of iron, obtaining good results. Address "ANNEALER," office of *The Iron Age*, 220 S. Fourth St., Philadelphia, Pa

HAVING given notice to my employers of my intention to leave their employ, I would like to hear from parties in want of a Foundry Foreman; have been at the business over 16 years; four as foreman; am familiar with Loam, Dry and Green Sand Work, Heavy or Light. Mixing Charcoal, Coke or Anthracite Irons, Melting with Coal or Coke, and handling a large number of men, and don't use rum. Address "GREEN SAND," Office of *The Iron Age*, 66-68 Duane Street, N.Y.

A No. 1 MACHINIST-DRAFTSMAN desires a position as assistant superintendent, draftsman or foreman in a manufacturing concern. References concerning ability as inventor, designer and an economical manager of help with marked success in reducing cost of work. Screw machine, jig and automatic tools a specialty. Address "Box 610," Torrington, Conn.

A GENTLEMAN of extensive business experience, and for a number of years manager of a branch house for a large manufacturing company, wishes to make arrangements to take charge of a branch or agency, East or West, for a first-class manufacturing company. No objection to travelling a portion of the time. The best of references in New York, Philadelphia and Boston. Address "E. E.," P. O. Box 1253, Philadelphia.

POSITION AS MANAGER of open-hearth furnaces by one capable of analyzing stock used. Address "STOCK," office of *The Iron Age*, 77 Fourth Ave., Pittsburgh, Pa.

AN EXPERIENCED mechanical draughtsman, practically and theoretically educated, desires to make a change and obtain a position where strict confinement to the drawing board would not be required, but could assist superintendent or foreman. Have had experience in tube mill and rolling mill work, special and general machinery; age 34 years. Address "ASSISTANT," office of *The Iron Age*, 66 and 68 Duane street, New York.

AS SUPERINTENDENT OR FOREMAN in architectural iron works by a practical, energetic man of long experience in wrought and cast iron work; understands plans and can handle men to advantage; is familiar with construction, and can furnish first-class reference. Address "WORKER," Box 97, office of *The Iron Age*, 66 and 68 Duane street, New York.

METALLURGICAL CHEMIST with large experience in the manufacture of Bessemer, Siemens Martin, Crucible Cast Steels, and in the management of Blast Furnaces, desires an engagement with reputable manufacturing or commercial concern. Address "T. K. L.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WANTED-the management of some first-class steel works. The advertiser possesses practical abilities of a high order and would undertake either the management or agency for a good house; can command a fine trade in Chicago, St Louis, Lake Superior and throughout the mining districts, notably, Montana, Utah and Colorado. Address "GOOD MANAGEMENT," office of *The Iron Age*, 66-68 Duane St., N. Y.

WANTED.—Situation as Superintendent of Machine Works, by a gentleman who has had a good practical as well as theoretical training; understands handling of men to advantage, and the construction of special machines. Address, stating character of work, "D. R.," Box 87, office of *The Iron Age*, 66 & 68 Duane St., N. Y.

WANTED.—A situation by a man of 20 years' experience, as Blast Furnace or Mill Manager, being also an experienced Roll Turner in rails and shape Iron and Steel of all kinds. Can design and superintend the construction of all kinds of mill and furnace machinery; highest references given. Address "IRON AND STEEL," Box H., office of *The Iron Age*, 66 and 68 Duane St., New York.

A GENTLEMAN who has had an extensive business experience and who possesses business abilities of a high order, would like to make an arrangement to take charge of a Chicago Agency for some first-class Eastern manufacturing firm. Best of references, both East and West. Address "H.," Office of *The Iron Age* 66 and 68 Duane Street, New York.

EXTERIOR VIEW OF GIES & CO'S

Lithographing, Printing AND ENGRAVING ESTABLISHMENT.

SPECIALTIES,
CATALOGUES, PAMPHLETS, POSTERS.
FOLDERS, BOOK COVERS.
WOOD ENGRAVING & ELECTROTYPING
LITHOGRAPHED STATIONERY.

THE MOST COMPLETE CONCERN OF ITS KIND IN THE COUNTRY.

MAIN BUILDING.

BASEMENT, STOCK ROOM AND SHIPPING DEPARTMENT
1ST FLOOR, OFFICE AND STOCK ROOM.
2D " DESIGNING AND ARTISTIC DEPARTMENT.
3D " COMPOSING ROOM AND WOOD ENGRAVING DEPARTMENT.
4TH " ELECTROTYPE FOUNDRY, DRYING AND STORE ROOMS.

DEPARTMENTS

REAR EXTENSION.

1ST FLOOR, BOOK AND JOB PRINTING DEPARTMENT.
2D " LITHOGRAPHIC PRINTING.
3D " STATIONERY PRINTING AND TRANSFERRING DEPARTMENT.
4TH " BINDERY AND BLANK BOOK DEPARTMENT.

Buffalo, N. Y.

HARTMAN STEEL CO., Ltd.

Open-Hearth and Bessemer Steel. Cold Die Rolled Steel. Bright, Coppered and Galvanized Wire. Fence Wire, Fence Staples, Wire Nails, Copper Wire.

APOLLO IRON & STEEL CO.

Best Bloom Galvanized Sheet Iron. Double Refined Black Sheet Iron. Open-Hearth Soft Sheet Steel. Corrugated Sheet Iron and Steel.

Accuracy and strength are the prevailing qualities in

Patent Cold Die Rolled Steel Shafting.

All leading sizes can be obtained quickly from our Chicago stock.

Consumers of Galvanized Iron should obtain the best quality made. Your local jobber carries

Apollo Best Bloom

in stock, or can supply you quickly if you ask for this brand.

NELSON B. WILLIAMS,

WESTERN AGENT,

Chicago Office, Rookery Building.

St. Louis Office, Bank of Commerce Building.

CHICAGO WAREHOUSES,

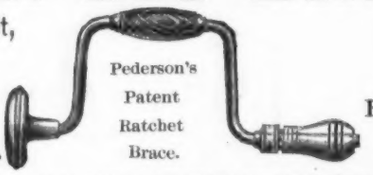
NEWBERRY AVE. and 15th ST.

Rail Connection with all Lines entering the City.

AMERICAN BIT BRACE CO.,

Nos. 122, 124 and 1 6 Washington Street, BUFFALO, N. Y.

New York City Agents,
SISE, GIBSON & CO.,
100 Chambers St., N. Y. City.


Pederson's Patent Ratchet Brace.

Southern Agents,
HOEN & VON KAPFF,
Baltimore, Md.

We have received orders so far ahead of our highest expectations (especially for the Pederson Ratchet Brace) that we have no doubt unavoidably caused many of our patrons serious inconvenience by being unable to give them the prompt attention we so much wish to bestow. We have, however, this week purchased several duplicate machines, which will now give us an enormous producing capacity, and enable us very soon to complete all of our orders. We trust that those who have kindly favored us with their patronage will bear with us a little while longer; and we can assure them that they will be abundantly paid for waiting. As we expect, from every indication, to be crowded to our utmost for months to come, we solicit orders *in advance*, which, of course, will receive first attention, at the time desired.

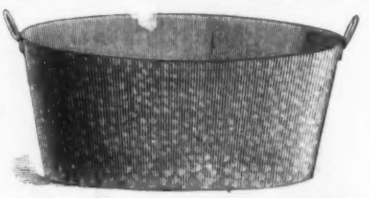
We are, very respectfully,

Sept. 1st, 1888. AMERICAN BIT BRACE COMPANY.

Indurated Fibre ware.

OVAL KEELERS.

— FOR —
FOOT BATH.



— FOR —
BABY BATH.

FOR DISH PAN, &c., &c.

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Per Box 50 feet.

	Sizes	Single. 1st. EFH D	2d. IEH D	3d. HH D	4th. HB D
25	6 x 8 to 10 x 15	$10.50	$9.00	$8.50	$8.00
40	11 x 14 to 16 x 24	11.50	10.75	10.25	9 75
50	18 x 22 to 20 x 30	15.50	14.00	13.00	12.50
54	15 x 36 to 24 x 30	16.50	15.00	13.50	.....
60	26 x 28 to 24 x 36	17.75	16.25	14.75	.....
70	26 x 36 to 26 x 44	19.00	17.50	15.25	.....
80	26 x 46 to 30 x 50	21.00	19.50	17.00	.....
84	30 x 52 to 30 x 54	22.00	20.25	18.00	.....
90	30 x 56 to 34 x 56	23.00	21.25	19.00	.....
94	34 x 58 to 34 x 60	24.00	22.75	21.00	.....
100	36 x 60 to 40 x 60	26.50	24.50	23.00	.....

	Sizes.	Double. 1st. EFH D	2d IEH D	3d HH D	4th HB D
25	6 x 8 to 10 x 15	$13.00	$12.50	$12 00	$11.50
40	11 x 14 to 16 x 24	16.00	15.00	14.50	....
50	18 x 22 to 20 x 30	20.50	19.50	18.50	...
54	15 x 36 to 64 x 30	21.00	20.75	19.50	...
60	26 x 28 to 24 x 86	25.00	23.00	21.50	....
70	26 x 36 to 26 x 44	26.00	25.00	23.00	....
80	26 x 46 to 30 50x	28.00	26.50	24.50	....
84	30 x 52 to 30 x 54	30.00	28.00	26.00	...
90	30 x 56 to 34 x 56	31.00	30.00	28.00	...
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Sizes above---$15 per box extry for everp 5 inches
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50	18 x 22 to 20 x 30	15.50	14.00	13.00	12.50
54	15 x 36 to 24 x 30	16.50	15.00	13.50	....
60	26 x 28 to 24 x 36	17.75	16.25	14 75	...
70	26 x 36 to 26 x 44	19.00	17.50	15.25	....
80	26 x 46 to 30 x 50	21.00	19.50	17.00	....
84	30 x 52 to 30 x 54	22.00	20.25	18.00	..
90	36 x 56 to 34 x 56	23 0s	21.25	19.00	....
94	34 x 58 to 34 x 60	24.00	22.75	21.00	....
100	36 x 60 to 40 x 60	20.50	24.50	23.00	..

United Inches.	Sizes.	Double. AA	A	B	C
25	6 x 8 to 10 x 15	$13.00	$12.50	11.00	$10.00
40	11 x 14 to 16 x 24	16.00	15 00	18.50	12.00
50	18 x 22 to 20 x 30	20.50	19.50	18.00	....
54	15 x 36 to 24 x 30	22.00	20.75	18.75	....
60	26 x 28 to 24 x 36	25.00	23.00	21.00	....
70	26 x 36 to 26 x 44	26.00	25.00	22.50	...
80	26 x 46 to 30 x 50	28.00	26.50	33.75	....
84	30 x 52 to 30 x 54	30.00	28.00	25.25	....
90	30 x 56 to 34 x 56	31.00	30.00	27.00	....
94	34 x 58 to 34 x 60	32.50	31.00	28.00	....
100	36 x 60 to 40 x 60	36.00	33.50	30.00	...

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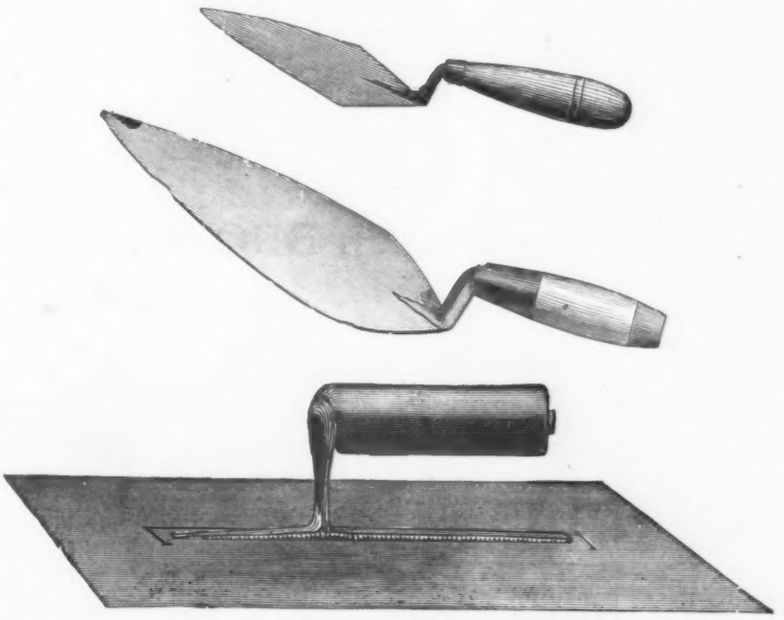

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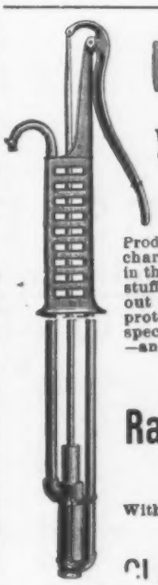

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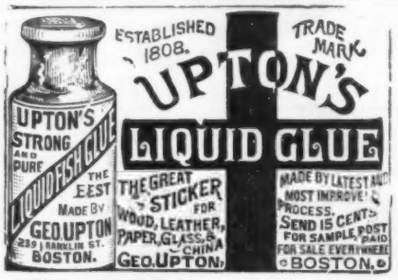

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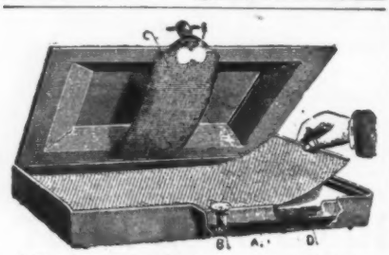

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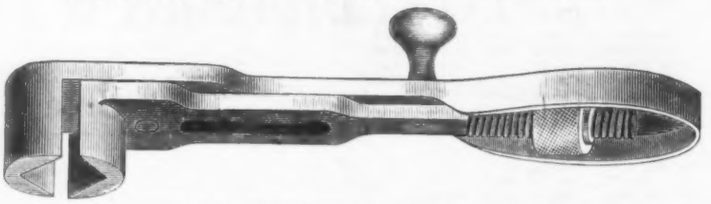

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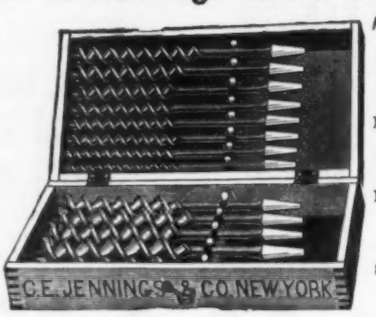

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Fig. 120.

Fig. 70.

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Fig. 209.

Fig. 381.

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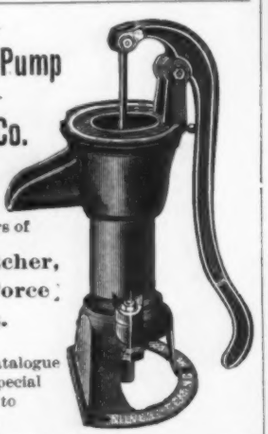

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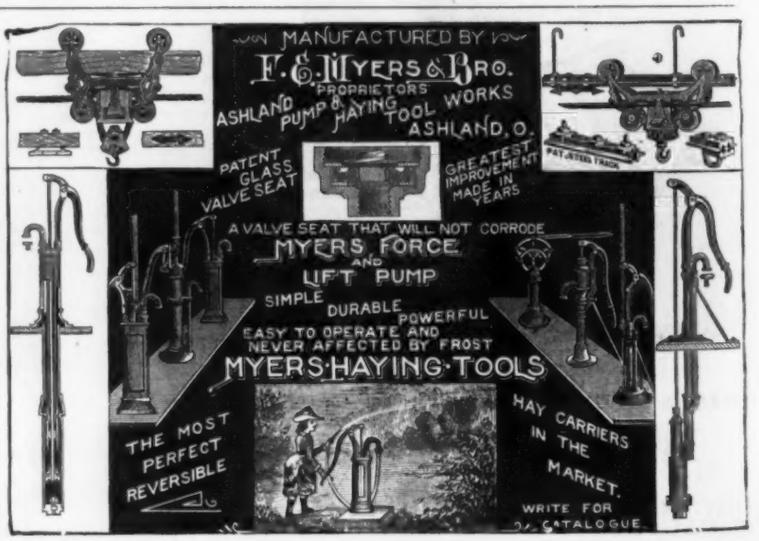

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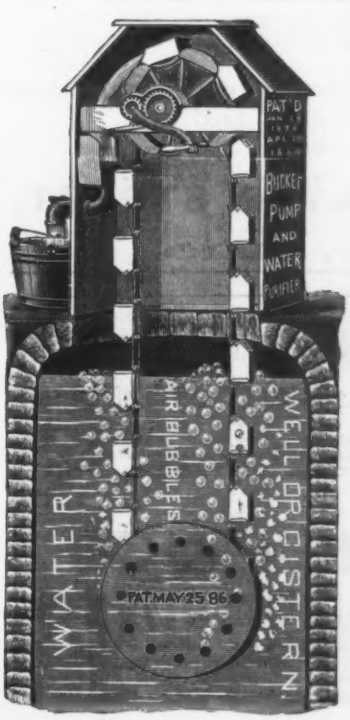

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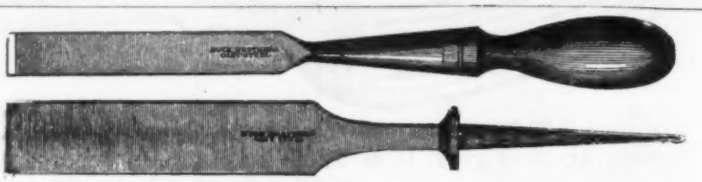

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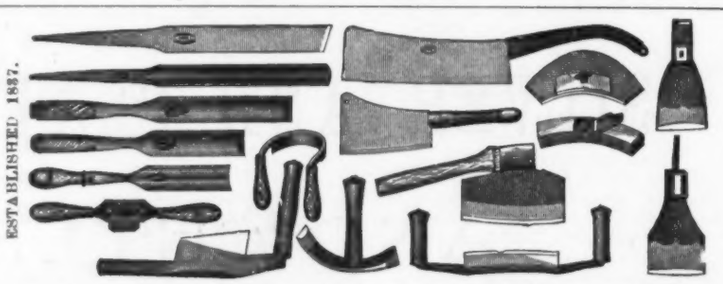

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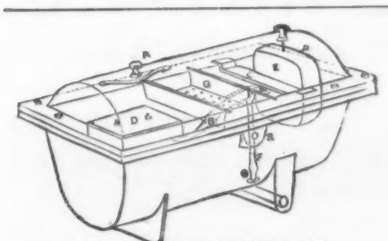

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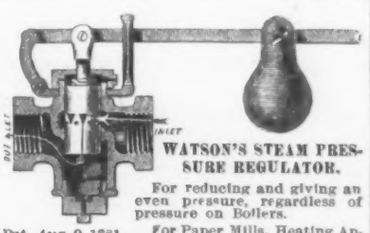

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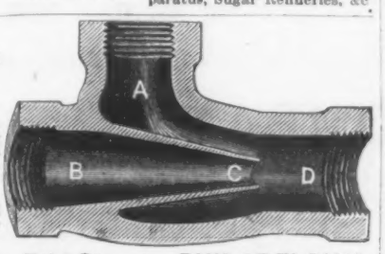

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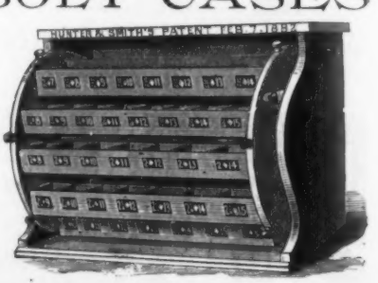

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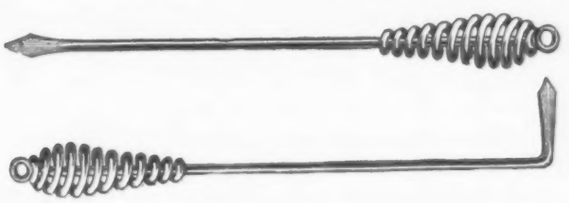

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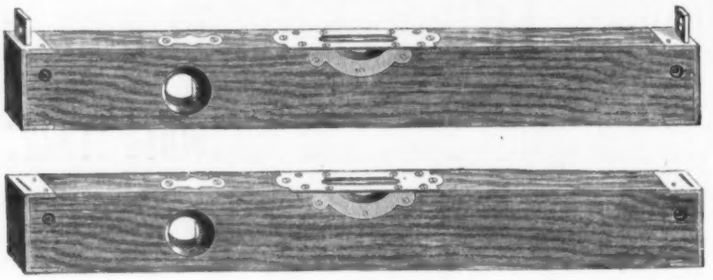

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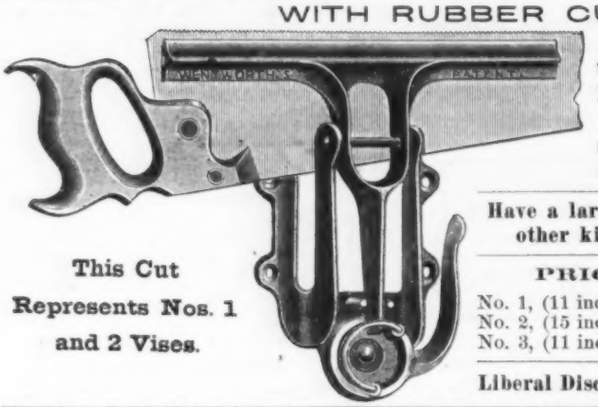

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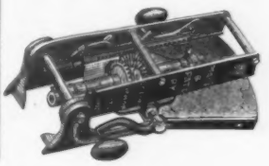

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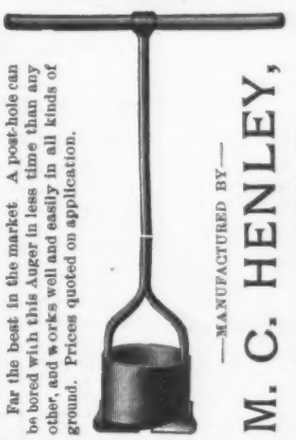

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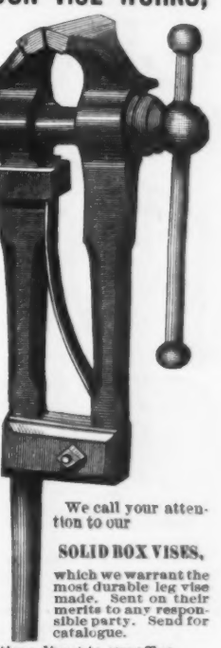

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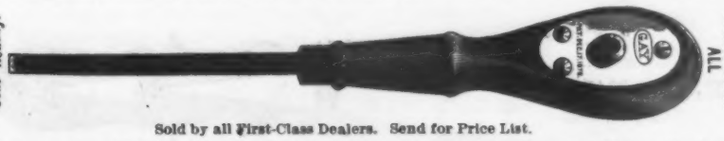

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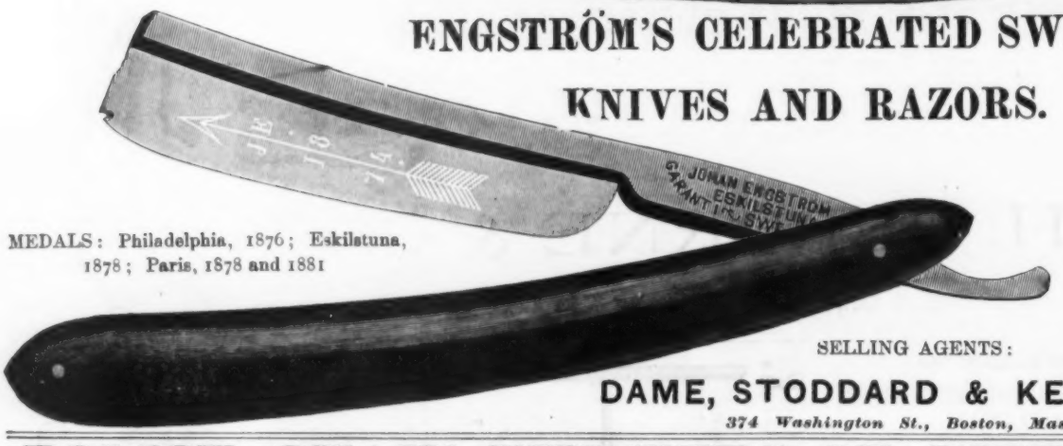

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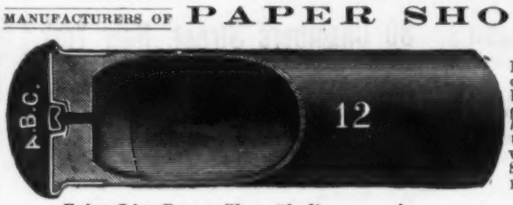
MANUFACTURERS OF **PAPER SHOT SHELLS.**



We call your attention to our line of Paper Shot Shells as quoted below. These goods have been *much improved in quality, are guaranteed equal to any in the market* and we offer them at *lower than the combination prices.* All previous quotations are withdrawn Samples and quotations will be furnished on application.

Price List Paper Shot Shells.

I. X. L. Waterproof. Either White or Black.

No. 10—2⅝ and 2¾ inches, - - per 1000, $9.00
No. 12—2⅝ inches, - - - - " 8.00
Discount, 40 and 50 per cent.
No. 16—all lengths, - - - - " 7.50
Discount, 30 and 10 and 5 per cent.

Special Quality. Not Waterproof.

Either White or Black.

Guaranteed sure fire for one shot.

No. 10—2⅝ and 2¾ inches, - - - - per 100, $9.00
No. 12—2⅝ inches, - - - - - " 8.00
Discount, 40 and 10 per cent.

BRASS SHELLS.

"Fowler's Patent."

The best by all odds in the market.

10 and 12 gauge, - - - - - per 100, $3.25
Remington's 10 gauge only, - - - " 2.50
Copper Primers No. 2 fit all Paper and Brass Shells, - - - - - per 1,000, $1.00
Cartridges, all makes and sizes—Rim and Centre Fire—under the market.

Terms 60 days, or 2 per cent. off cash in 10 days.

THE "EASY" BOLT CLIPPER.

MANUFACTURED BY

H. K. PORTER,

66 & 68 Beverly St., Boston.

For Sale by the Trade Generally.

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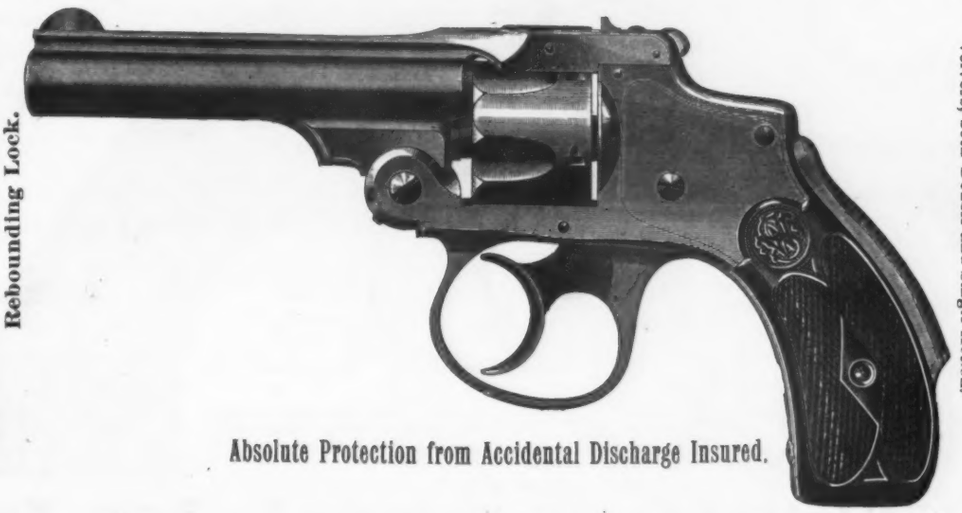
The Smith & Wesson Hammerless, Safety

REVOLVER.

Provided with Automatic] Shell Extractor, Rebounding Lock.



Absolute Protection from Accidental Discharge Insured.

CALIBRE 32, WEIGHT 14½ OZ.
—AND—
CALIBRE 38, WEIGHT 18½ OZ.,
NOW READY.

The Latest production from the Works of SMITH & WESSON, Springfield, Mass., Manufacturers of Superior Revolvers, both Double and Single Action.

SUPERIORITY IN EVERY POINT UNIVERSALLY CONCEDED.

SEND FOR DESCRIPTIVE CIRCULAR.

FOREHAND & WADSWORTH'S
New HAMMERLESS Revolver,

Automatic Shell Extracting,

32 and 38 Centre Fire S. & W. Cartridge.

AN ABSOLUTELY SAFE ARM.

It has the strongest and safest barrel catch put upon any pistol, and it is impossible to unlock or tip the barrel when the discharge takes place, for in cocking the arm, the barrel catch is positively locked by a safety block. It also has a safety catch to lock the hammer, when it is desired to prevent accidental discharge. ***Rebounding Lock.*** Weight 16 ozs.

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Sold by all Dealers in Arms generally throughout the United States.

LOVELL'S Hammerless, Automatic Shell-Ejecting REVOLVER.

38 Cal.
Using 38 S. & W. Central Fire Cartridge.

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This Revolver has many improvements not to be found in any other make, including *Improved Automatic Shell Ejector, Rebounding Lock.* Improved method of instantly removing the Cylinder, and the *Safety Attachment* in forward part of Trigger which renders accidental discharges *absolutely impossible. It is the Safest Revolver Made.* Descriptive Circular and Prices to the Trade Furnished on Application.

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The "NEW BAKER" cannot be excelled for Close, Hard, Long-Range Shooting in the Field or at the Trap by any Gun made, no matter what the price.

OUR GUARANTEE.

We agree to replace at our Factory all parts that fail through defects of material or workmanship without charge to our customers whether the Gun is purchased direct from us or through dealers. The NEW BAKER is made in both 10 and 12 Gauges. The 10 Gauge Barrels being 30 or 32 inches long, and weighing from 8 to 11 pounds. The 12 Gauge are made 28, 30 and 32 inches long, weighing from 7½ to 9 pounds. All Guns being Full Choked or one Barrel Choked, and the other Cylinder or modified Choke as ordered without extra charge.

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Effective and Reliable.

WEIGHT 18 oz.

IN 32 & 38 Cal. Central Fire, Nickle Plated, Rubber stock and with 3 1-4, 4 and 5 inch barrels.

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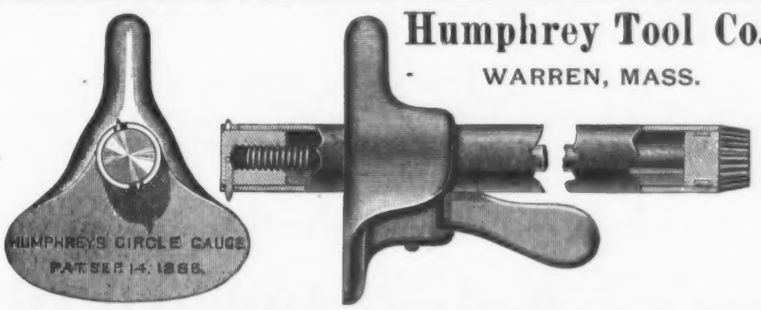

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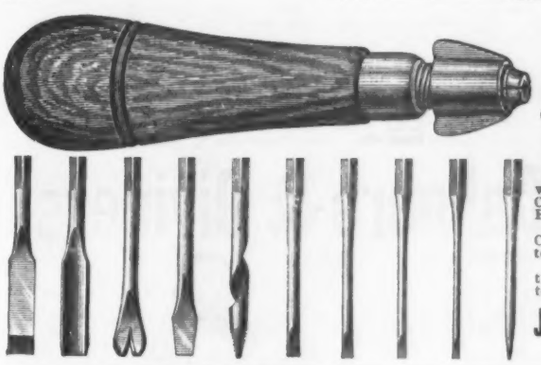

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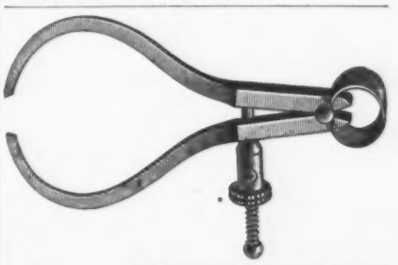

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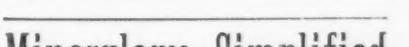

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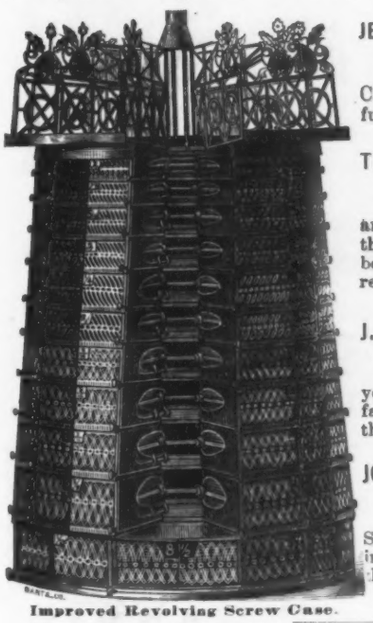

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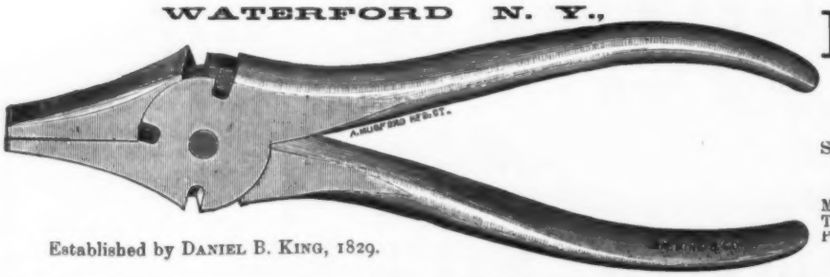

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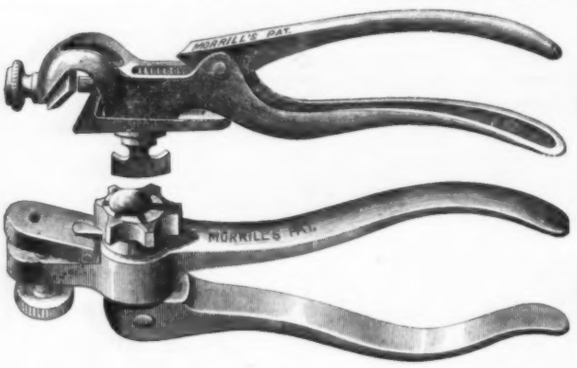

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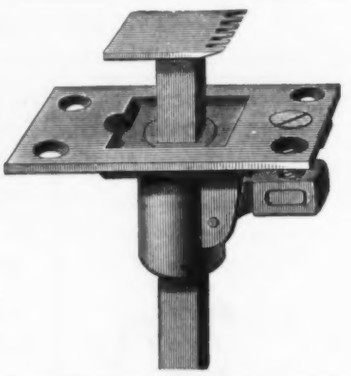

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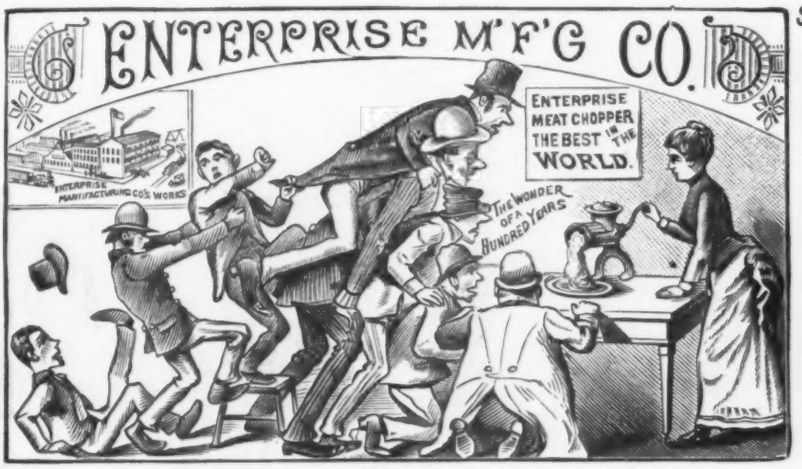

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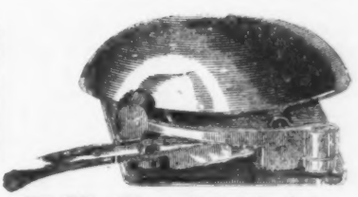

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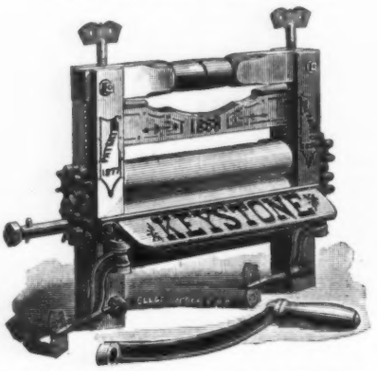
Hardware Specialties and Household Articles.

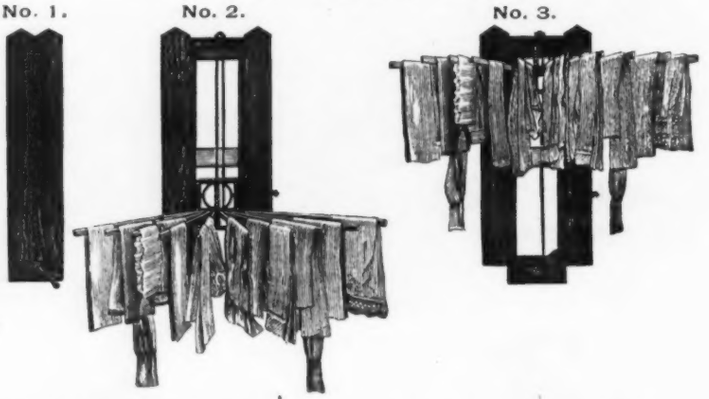
KEYSTONE WRINGER.



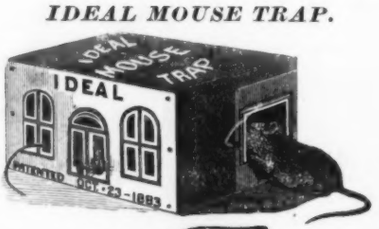
WOOD FRAME COG WHEEL.

CABINET CLOTHES DRYER.

No. 1. No. 2. No. 3.



IDEAL MOUSE TRAP.

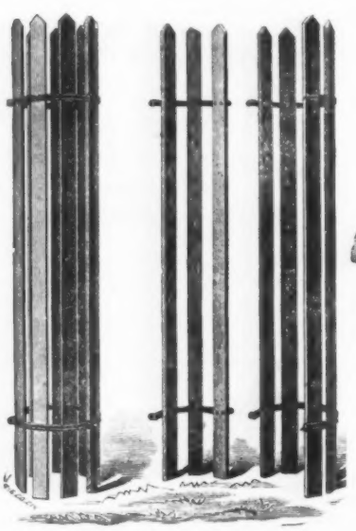


SLAYER RAT TRAP.

THE ACME LEMON SQUEEZER.

HOUSEHOLD STEP LADDER.

SAMSON CORK PULLER



TREE GUARD.

CYCLONE MOUSE TRAP.

Automatic Steam Flue Cleaner.

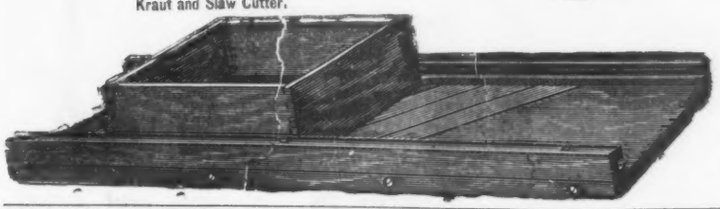
TUCKER & DORSEY MFG. CO., INDIANAPOLIS, U. S. A.

—MANUFACTURERS OF—

WOODENWARE AND HARDWARE SPECIALTIES.

Daisy Stove Truck.

Kraut and Slaw Cutter.



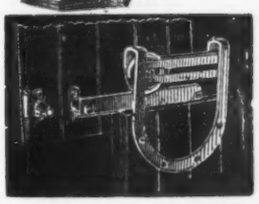
Write for Special Discounts to Jobbers and notice next issue.

THE SWIFT MILL.

ESTABLISHED 1845.

The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental, and workmanship of the very best. We make more than 30 styles.

Lane's Measuring Faucet.



LANE'S PATENT STEEL DOOR HANGER.

The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. **LANE'S PATENT TRACK** is made ofsteel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

Manufactured by LANE BROS., Poughkeepsie, N. Y.

JOHN H. GRAHAM & CO., General Agents, 113 Chambers Street, NEW YORK.

UDELL WOODENWARE WORKS.

Indianapolis, Ind.

79 Reade Street, N. Y.,

MANUFACTURE THE

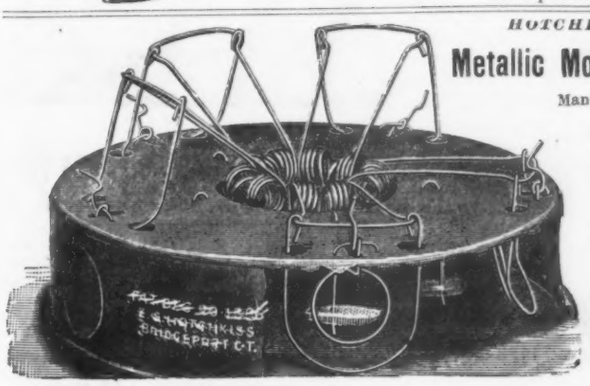
"MODEL" STEP LADDER.

Diamond Bar, Extension Ladders, Rope Reels, Broom Stands, Towel Rollers and Arms, Blacking Cases, Commodes, Ironing Boards and the largest line of Woodenware in the world.

Send for illustrated catalogue and special prices.

HOTCHKISS PATENT

Metallic Mouse & Rat Traps.



Manufactured by

E. S. Hotchkiss,

BRIDGEPORT, CONN.

Both Self-Setting.

Send for Illustrated List. Samples by mail, 15c. and 25c. respectively.

AGENTS

J. H. Graham & Co.,

113 Chambers St.,

NEW YORK.

Porcelain Lined Lemon Squeezers

Best Common Mouse Traps, Steak Hammers, Boot Jacks Lap Boards, Beacon Hill Pat. Mouse Traps, Mallets, Bung Starters, Hand Screws.

Ripley Mfg. Co. Unionville, Conn

NEW UNION RAT TRAP.

The only Practical Self-Setter. SAMPLE TRAP FREE. Manufactured by

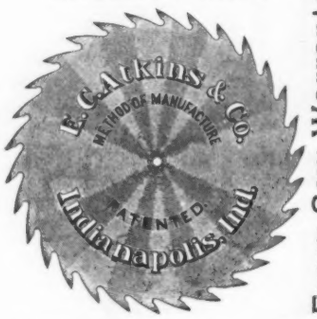
Sanford & Hawley, Unionville, Ct.

Knapp & Cowles Mfg. Co., Bridgeport, Conn.

E. C. ATKINS & CO., Indianapolis, Indiana.

FINE SAWS A SPECIALTY.

CIRCULAR, BAND, GANG and CROSS-CUT SAWS.



Every Saw Warranted.

We were the first to introduce the best grade of Saws, among which are the

Tuttle Tooth, Diamond and Dexter,

and the Celebrated

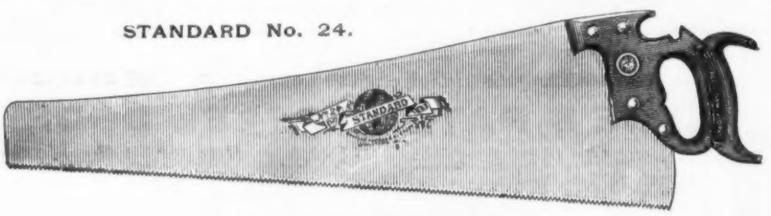
SILVER STEEL DIAMOND.

The King of Saws.

Western Agents for Tanite Emery Wheels. *Write for Catalogue and Prices.*

HOLLOW THIN BACK.

STANDARD No. 24.



Extra Temper.
Superior Finish.
Patent Handle.

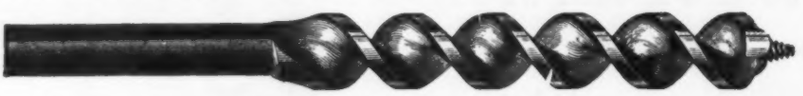
The best and cheapest Hand Saw in the market.

LIST, $20 PER DOZEN.

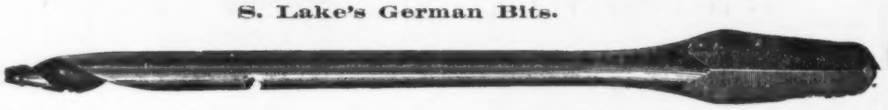
WHEELER, MADDEN & CLEMSON MFG. CO.,

Middletown, N. Y.

MACHINE BITS FOR POWER BORING.



S. Lake's German Bits.



ALBERT E. CURRIER

MANUFACTURER OF THE

Best Quality Cast-Steel

AUGER and CAR BITS,

Nut and Boring Machine Augers.

SEND FOR CATALOGUE

CHESTERFIELD FACTORY,

New Hampshire.

ACME CUTTING TOOLS.

Made in all Sizes.

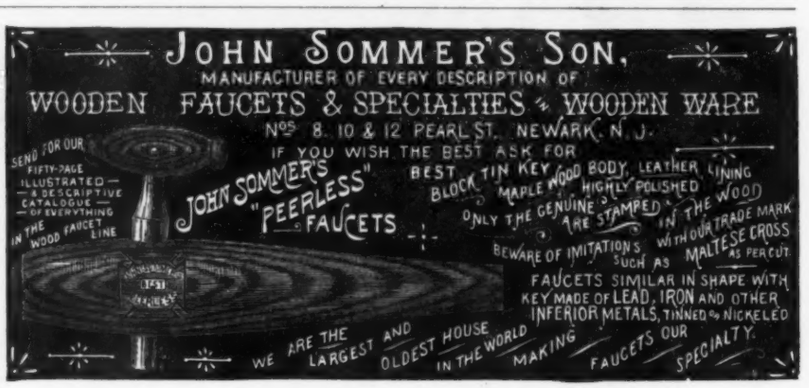
SOLID STEEL ACME PLIER AND WIRE CUTTER. Made with cutters of best steel.

Jaws of Choicest Tool Steel, dovetailed into the head, making it as strong as solid steel.

ACME CUTTING NIPPER.

HIGGANUM HARDWARE CO.,

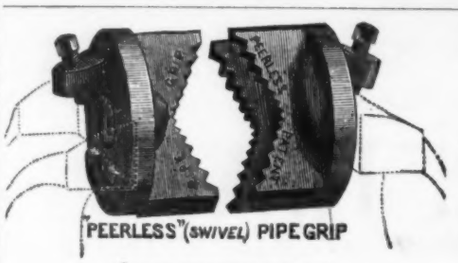
HIGGANUM, CONN.



NEW SELF-SETTING PLANE

Sample sent for trial as per our Circular if local dealers do not keep it.

Gage Tool Co.,
Vineland, N. J.



Send for Illustrated Catalogue.

Made of Steel, Fits any Vise,

PRICE, $2.50 and $2.75.

Instantly converts *any Vise* into a first-class *Pipe Vise*, Holding Pipes, Thimbles, Couplings, Bolts, Nut &c., in *any position*.

PRENTISS VISE CO.,

M'f'rs of all kinds of Vises,

23 DEY STREET, NEW YORK.

KEYSTONE LOCK WORKS,

LANCASTER, PA.

E. T. FRAIM,

Manufacturer of the Celebrated Patent Inter-Locking Tumbler

JAIL PADLOCKS,

The only durable low-priced Scandinavian padlock ever produced, 34 different grades and sizes, all malleable iron. Red, black and bright brown, Japanned.

FLAT STEEL KEY LOCKS A SPECIALTY.

Write for New Illustrated Catalogue and Discounts.

TOWER & LYON, GENERAL AGENTS, 95 CHAMBERS STREET, NEW YORK.

THE BOSTON KNOB CO.,
MANUFACTURERS OF FINE DOOR KNOBS,

No. 169 HIGH STREET,

GEO. F. WHITING, (FORT HILL SQUARE.)
President and Manager.

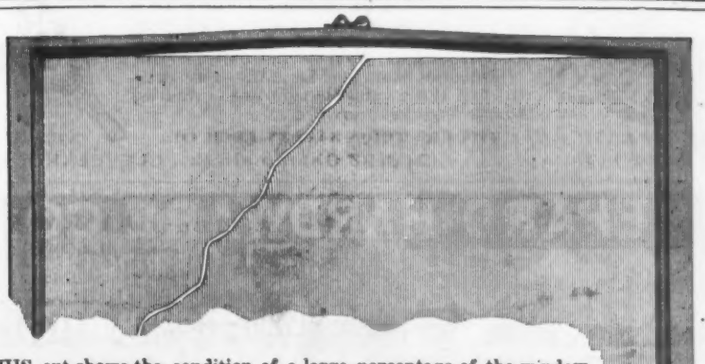
THE peculiar qualities of the Knobs made by the Boston Knob Company are, their great *strength*, *beauty* and *durability*.

Unlike all others, they improve in appearance, while bronze, brass or wooden knobs commence to depreciate as soon as used. The Knobs manufactured by this Company do not require cleaning or polishing.

They are furnished in a variety of colors to harmonize with the finish or decoration of rooms.

They are warranted to wear as long as any knob made. This Company use the *New Boston Spindle*.

Send to the office of the Company for prices, or to any leading wholesale hardware dealer.



THIS cut shows the condition of a large percentage of the window having one-light sashes. It is caused by pushing on and consequently springing the meeting rails when raising or lowering the windows, and results in ultimately cracking the glass, thus entailing an expense for repairs greater than the cost of applying Wigger's Patent Sash Lifters. These Sash Lifters obviate this trouble and also prove a great convenience in operating this class of windows, as previously described in the columns of *The Iron Age*.

The steadily increasing demand for these goods proves their utility, and also that both Architects and their Clients appreciate their merits, and that many Architects have specified them on buildings to be completed this fall. We shall be pleased, therefore, to send samples, sample cards and circulars (with blank space for dealers' name), on application, as the goods will be supplied exclusively through the Builders' Hardware Trade.

WRITE FOR PRICE LISTS, &c.

BRAINERD & CO.,

MANUFACTURING AGENTS,

97 Chambers St., New York.

ELIZABETHPORT STEAM CORDAGE CO.,

Manufacturers of the Standard

BINDER TWINE

TRADE MARK E TRADE MARK E

Also CORDAGE of all Kinds

46 South Street. NEW YORK.

IVES' PATENT. SASH LOCK.

MANUFACTURED ONLY BY BELL TIP, ORNAMENTAL.

H. B. Ives & Co. NEW HAVEN, CONN.

Security Sash Lock.

Patented Nov. 9,'86.

Anti- Rattler.

The Claflen Mfg. Co.,

Cleveland, Ohio, U. S. A., Sole Manufacturers.

ROSE

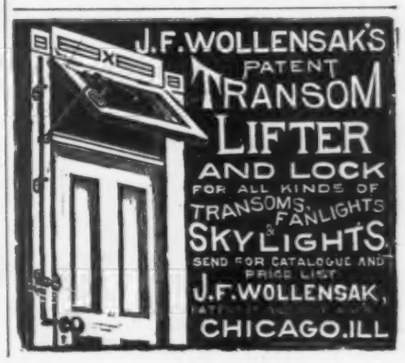
Ventilating Window Sash Lock.

A safeguard against the incessant rattling of windows. They will lock the sash (upper and lower securely at any desired point, affording safe means of ventilation. By its pressure against the sash it acts as a weather strip to keep out dust and cold air. They are easily put on, cannot get out of order and do not damage the finish on a window. Made in variety of ornamentation in Malleable Iron (Nickel Plated and Bronzed), and Bronzed Metal. Send for descriptive circular of **Andrus Sash Balance and Rose Ventilating and Sash Locks, &c.**

WM. H. CALDWELL,

Successor to

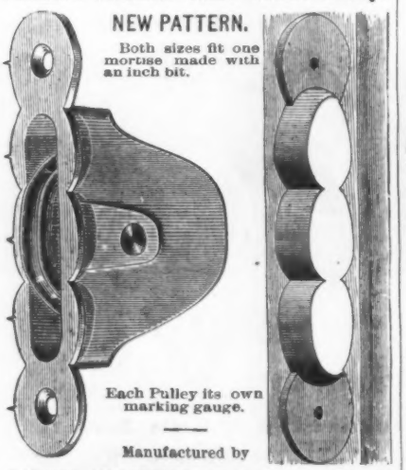
ANDRUS MFG. CO., Rochester, N. Y.



Palmer's Common Sense Frame Pulley.

NEW PATTERN.

Both sizes fit one mortise made with an inch bit.



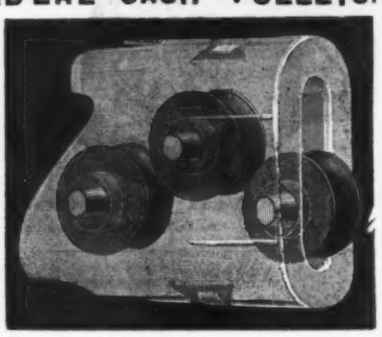
Each Pulley its own marking gauge.

Manufactured by

PALMER HARDWARE MFG. CO., Troy, N. Y.

Sole Eastern Agts., Peabody & Parks, Troy, N. Y.

IDEAL SASH PULLEYS.



From two to six of the Ideal can be applied to one of any other make on the market. A great saving of time and money to contractors and carpenters. Marking Gauges furnished with each lot of pulleys. Send for circular and price,

STOVER MFG. CO,

Freeport, Ill.

Broken Sash Cords

—A THING OF THE PAST—

When your windows are hung with

Morton's Cable Chains.

Guaranteed for 10 Years.

Some are now in use 15 years and are as good to day as when put in.

Can be applied wherever cord is used, and without any alteration of pulleys or sashes

For further particulars address

"THOMAS MORTON,"

65 Elizabeth St., New York.

THE "AUTOMATIC" BLIND AWNING FIXTURE.

They ventilate and cool the room, giving free circulation of air and refreshing shade, and do not interfere with the ordinary use of the blinds.

Attachable to Old or New Blinds.

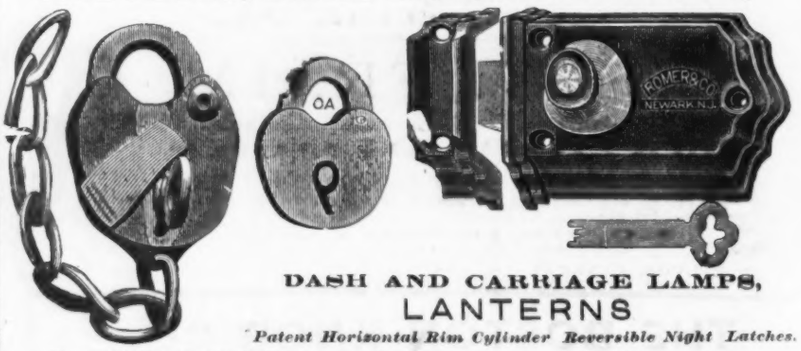
Sold by all the Hardware Trade.

F. O. NORTH & CO., Manufacturers, 276 Devonshire St., Boston, Mass.

W. H. JACOBUS & CO., 90 Chambers St., New York.

MARKLEY, ALLING & CO., Chicago, Ill.

ROMER & COMPANY, Manufacturers of PATENT JAIL LOCKS, BRASS and IRON PADLOCKS,



DASH AND CARRIAGE LAMPS,

LANTERNS

Patent Horizontal Rim Cylinder Reversible Night Latches.

Illustrated Lists sent to the Trade on application.

275, 277 and 279 Passaic St., near Erie and D. L. & W. R. R. Depots, Newark, N. J.

Samson Window Cord.

Solid Braided Lines for Window Cord, Railroad Bell Cord, Masons' Lines, Garden Lines. Clothes Lines, &c., &c. Send for Samples.

SAMSON CORDAGE WORKS, 164 High St., Boston, Mass.

Double Acting Spring **BUTTS**

SABIN'S LEVER DOOR SPRINGS

Coil, and Sabin's Volute Springs

For various purposes made to order.

SABIN MACHINE CO, Montpelier, Vt.

HALF SIZE.

Pat. Nov. 15, '87.

THE CHAMPION SAFETY SASH LOCKS.

These locks are being received with universal and enthusiastic approval by Architects, Builders, and Hardware Dealers everywhere. All bear testimony to their unequalled merits.

Hardware salesmen handling specialties will find this a valuable side line. Address the sole manufacturers,

SIDE LOCK.

THE CHAMPION SAFETY LOCK CO.,

21 & 23 Champlain St., CLEVELAND, O

SHEPARD HARDWARE CO,

LIGHTNING ICE CREAM FREEZERS. LATEST & BEST.

QUEEN CITY PRESS, FOR FRUIT, WINE JELLY &c. BEATS THEM ALL.

BLIND HINGES, GATE HINGES &c.

MAMMOTH FOUNDRY. BUFFALO. N.Y.

VARIETY IRON WORKS.

MAIN OFFICE AND FACTORY

FRANKFORD, PHILADELPHIA.

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SAN FRANCISCO, 109 California St.

ALFRED C. REX & CO.

MANUFACTURERS OF

Hardware Specialties

AND

Novelties in Iron, Brass and Bronze.

Special attention paid to Electro-plating in all its branches.

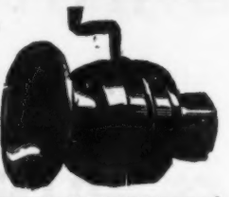
W. R. OSTRANDER & CO..

21, 23 & 25 ANN STREET, NEW YORK,

Manufacturers of

SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC MECHANICAL & PNEUMATIC ANNUNCIATORS & BELLS

Complete Outfits of Speaking Tubes, Whistles Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.



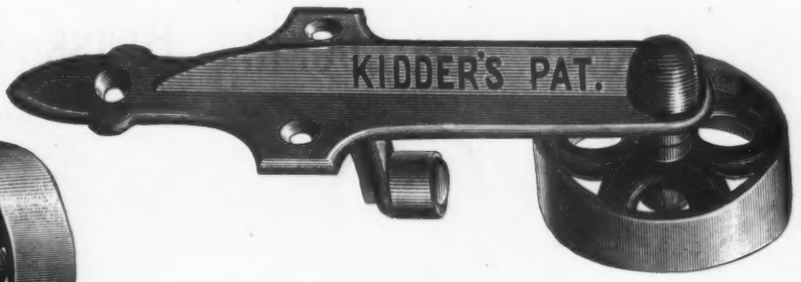
ABRAM QUACKENBUSH

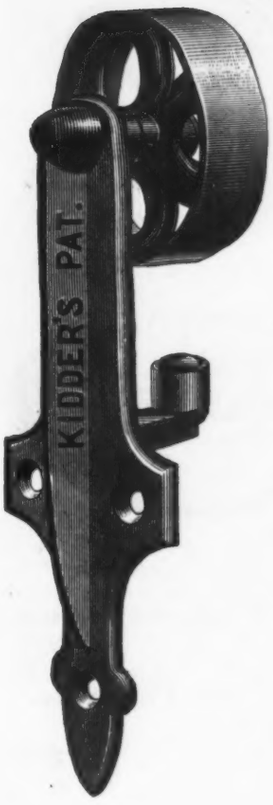
MANUFACTURER OF

Porcelain, Mineral & Jet Knobs & Escutcheons

Send for Price List and Terms.

Office and Salesrooms: 313 & 315 W. 37th St., N. Y.





TO THE JOBBING TRADE.

ROMEO, MICH., July 31st, 1888.

The undersigned have this day sold to THE TAYLOR & BOGGIS FOUNDRY COMPANY, of Cleveland, O., THE KIDDER SLIDE DOOR HANGER PATENT, Patterns and Good Will of the business, and while thanking you for the liberal patronage extended to us, we would ask for our successors a continuance of same.

We do this knowing you will be promptly and satisfactorily served, as our successors have made all the goods we have sold for the past seven years.

Yours Truly,

THE KIDDER SLIDE DOOR HANGER CO.

GENTLEMEN:

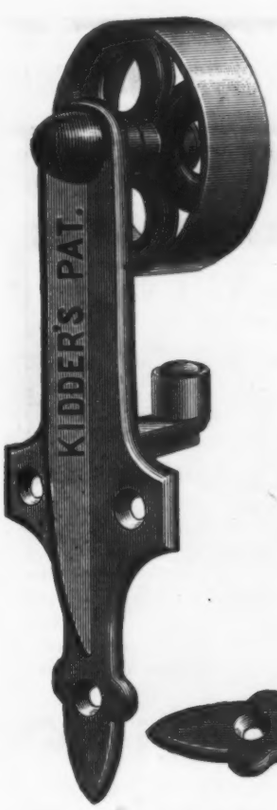
In pursuance of the above "we make our bow" as the sole manufacturers of, and would solicit your early and liberal orders for, the KIDDER SLIDE DOOR HANGER.

We shall keep constantly on hand a large stock of both sizes, that orders may be promptly filled, and shall endeavor by quality of goods and fair dealing to secure you as *regular* customers, and induce you to keep these goods constantly in stock. See our other ad., page 22.

Yours Respectfully,

THE TAYLOR & BOGGIS FOUNDRY CO.,

65 Central Way, Cleveland, O.



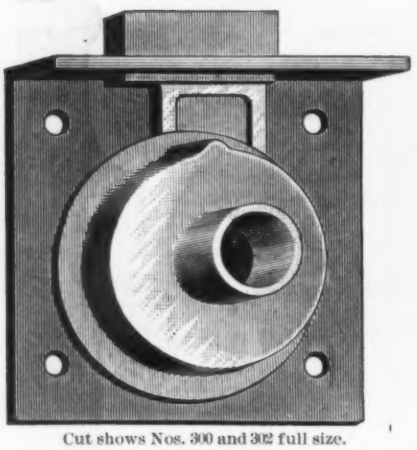
Champion 6-Lever Self-Locking Brass Padlocks.

The **CHAMPION 6-LEVER PADLOCKS** are now cast of a hard *gun metal*, much more durable than bronze. These are *the only padlocks* of which *the keys all differ*. Two nickel-plated steel keys with each. For security they excel all competitors. At current prices they are much the cheapest fine padlocks in this market. The springs are of phos-bronze, not rusted by salt water nor weakened by any climate.

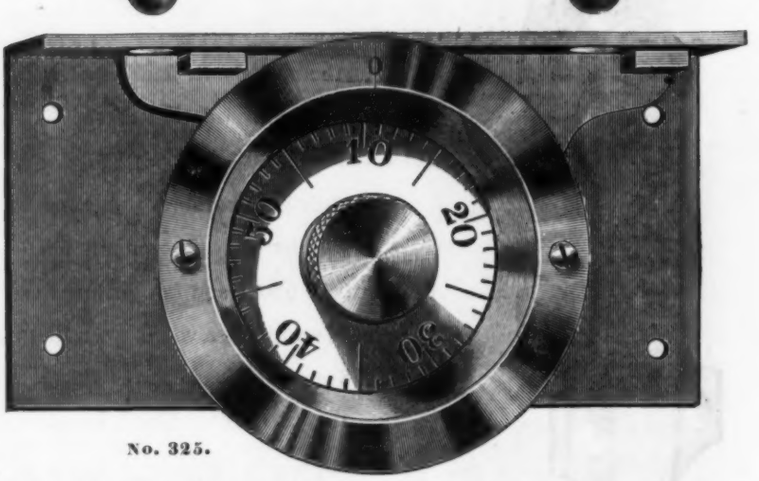
Price List Champion Six-Lever Padlocks.

Shown full Size in Cuts.

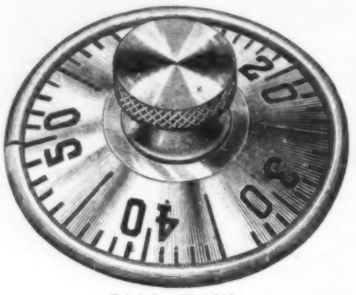
No. 10.—See cut, has 10-inch *tinned* iron chain	per doz.	$14.00
No. 1. Same as above, but no cha'n	"	12.00
No. 6.—See cut. Has elongated shackle	"	15.00
No. 7.—Same as No. 9, but with no chain	"	13.00
No. 68.—See cut. Baggage lock, with 24-inch patented brass chain	"	12.00
No. 67.—Same lock, without chain	"	10.00
No. 85.—See cut Store door or jail lock	"	15.00
Any of the above if made with *keys to pass* add	"	1.00
" " " if made with b th *special and master* keys, in sets to order, add	"	6.00



Cut shows Nos. 300 and 302 full size.



No. 325.



Dial for No. 302.

The Champion Keyless Locks require less time to open and afford *greater security* than any other Keyless Locks yet made for wood work. The highest medal of the Adelaide International Exhibition has been awarded the manufacturers. These locks are simple, *more durable* than a keyed lock and are coming largely into use on drawers, closets, lockers, carpenters' chests, &c. Their combinations are essentially different, while an ample number of changes can be made by the owner without removing the lock.

	Size of Case.	*For Wood.*	*Drop.*	*Price each.*
Champion Draw Lock No. **300**, see cut	3 x 2¼	⅝ in. thick	1¼ in. from centre of spindle	$1.50
" Closet Lock. No. **310**	3 x 2¼	1¼ "	1¼ " " "	1.75
" Box Lock, No. **334**	3 x 2¼	⅝ "	1¼ " " "	2.00
" Draw-Lock No. **302**, see cut	2 x 2¼	⅝ "	1¼ " " "	1.50
" Chest-Lock, No. **325** " "	4 x 2¼	⅝ "	1¼ " " "	2.50

For further particulars our illustrated catalogue No. 7, with discounts, is free to the trade. The above goods may be bought of leading jobbers throughout the United States.

MILLER LOCK CO., - - Frankford, Philadelphia, Pa.,

Sole Manufacturers and Proprietors of the Champion Brand of Locks.

SAFETY LIP "VICTOR"

Anti-Friction

Steel Door Hanger and Rail

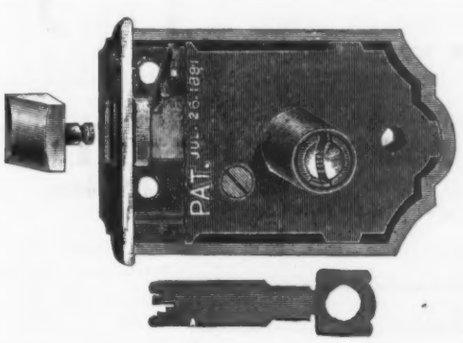
COMPACT. SIMPLE.
CHEAP. DURABLE.

Send for Catalogue.

Dealers using bracket track are requested to try our Steel Moody Hanger and Rail, it being cheaper and as good as any Hanger of this class.

VICTOR MFG. CO..

NEWBURYPORT, MASS.



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Can be made either plain or reverse bevel by taking off the cap, raising the small lever and turning over the bolt.

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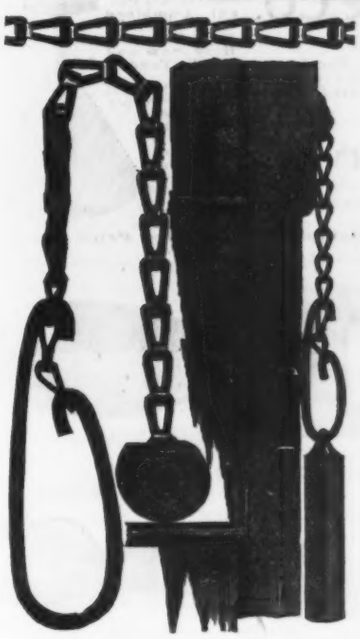

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Centennial Award. "Superior in Every Respect.

This is one of the best selling locks in the market, and affords the dealer a large profit. It is thoroughly and strongly made—of the best material—very handsome in appearance, and every Lock is warranted. Orders solicited.

THE GIANT METAL SASH CHAIN

is a substitute for cord in hanging weights to windows. It is manufactured by us only, and by automatic machinery, patented and owned exclusively by ourselves, and whereby we secure uniformity of construction and quality. We have been to great expense in producing a metal having all the qualities and conditions requisite for making suitable chain for this purpose, and to prevent other chain of the same pattern of link and of the same general appearance, but made from an inferior metal, being offered as the same thing, we patented the word "Giant" as a Trade-Mark, as applied to either metal or chain. Trade-Mark Registered April 16, 1878, and October 22, 1878, and our metal is therefore known in the market as "Giant Metal," and our chain as "Giant Metal Sash Chain."

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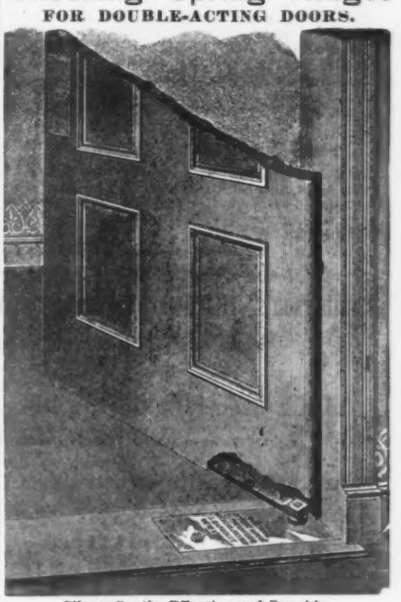
FOR DOUBLE-ACTING DOORS.



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—AND—

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The Peabody Door Spring.

The only low-priced Scientific Door Spring made; exerts its greatest power at the latch. Equally desirable for Screen Doors, House Doors, or Store Doors.

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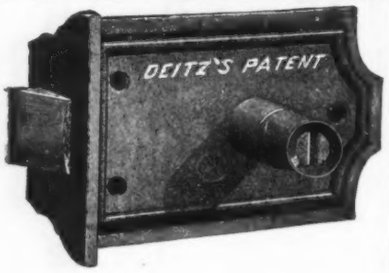
A. E. DEITZ.

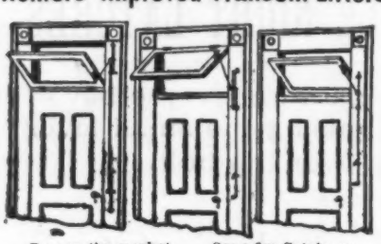


No 109 LATCH.

J. C. McCARTY & CO., Agents,
97 Chambers and 81 Reade Sts.,
NEW YORK.

Factory, BROOKLYN, E. D., N. Y.

Reihers' Improved Transom Lifters



Best in the market. Send for Catalogue

F. A. REIHER, Mfgr.,
11 and 13 S. Canal St., - CHICAGO, ILL

SHUT YOUR BLINDS

by using our "Worker," which opens or closes them without opening the window. They can be procured at any hardware store or by sending to DODD SHUTTER WORKER CO. No. 26 Church St., N. Y. Agents wanted.

The Queen Anne Screen Co., of Burlington, Vt., are manufacturing an

IMPROVED ADJUSTABLE WINDOW SCREEN,

with box panels. *The only one finished alike on both sides*, and both durable and cheap. Also a new frame for window screens and a new pattern of corners for both windows and doors, with sticks for frames.

Send for Circular and Price List.

Lamberson's Hardware Price Books.

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6x9½ Inches, 500 Pages.

Bound in Leather, Price, $8.00.

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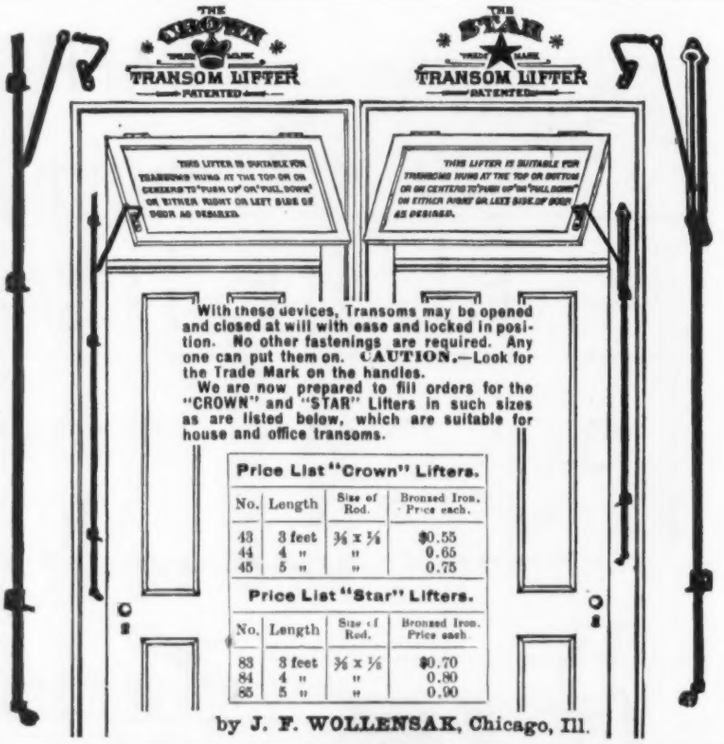

With these devices, Transoms may be opened and closed at will with ease and locked in position. No other fastenings are required. Any one can put them on. **CAUTION.**—Look for the Trade Mark on the handles.

We are now prepared to fill orders for the "CROWN" and "STAR" Lifters in such sizes as are listed below, which are suitable for house and office transoms.

Price List "Crown" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
43	3 feet	⅜ x ⅜	$0.55
44	4 "	"	0.65
45	5 "	"	0.75

Price List "Star" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each
83	3 feet	⅜ x ⅜	$0.70
84	4 "	"	0.80
85	5 "	"	0.90

by J. F. WOLLENSAK, Chicago, Ill.

BOSLEY'S FLEXIBLE RUBBER

WEATHER STRIPS.

Solid Rubber—Molded into Shape. All One Piece—No Stitching—No Cementing.

—PATENT APPLIED FOR.—

No. 8, Size ⅝ in.
Price per foot, 5c.
No. 9, Size ⅞ in.
Price per foot, 6c.

No. 10, Size ¾ in.
Price per foot, 8c.
No. 11, Size 1 in.
Price per foot 10c.

These Flexible Weather Strips are put up in lengths of 50 feet, making a package about 6 or 8 inches wide—1000 feet making one foot square. Any one can apply them with tack, hammer and shears. We also manufacture the **Peerless Rubber Window Cleaners and Floor Scrubbers.** *Liberal Discounts to the Trade.*

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Manufacture nearly *ONE THOUSAND* styles, sizes and varieties of

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for Watch, Clock, Piano and Cabinet Makers, Jewelers, Printers, Electrotypers, Dentists, Amateurs, Carpenters, Builders, Machinists and almost every kind of Mechanic or Artisan.

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Just out! Sells at sight! Price per Dozen, net, $4.00. Write for price in gross and great gross lots.

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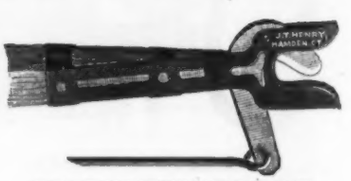
HENRY'S RING PRUNING SHEARS.



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——SEND FOR CIRCULAR.——

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SUCCESSOR TO

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CARRIAGE HARDWARE

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SPECIAL FORGINGS,

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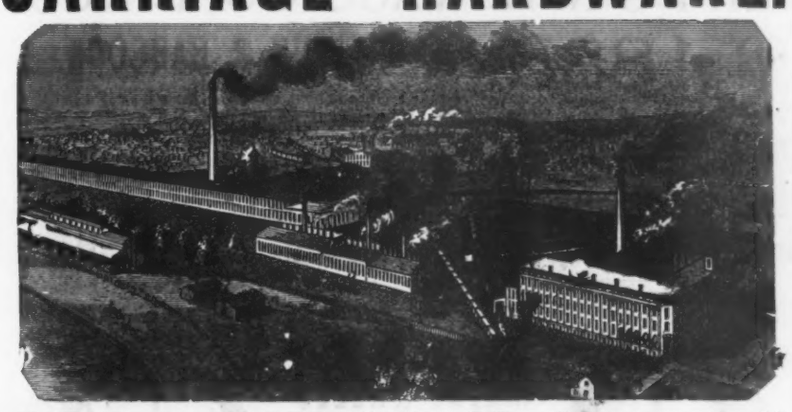
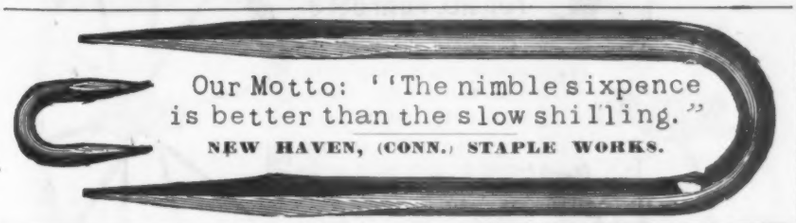


THE E. D. CLAPP MFG. CO., Auburn, N. Y.



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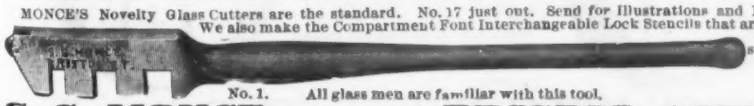

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Sample pair will be sent free to hardware or saddlery firms by addressing

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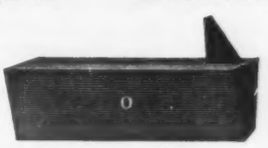

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MANUFACTURE THE LARGEST VARIETY OF

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Are drawn from the best Swedes Iron Rods only. They are hot-forged and cold-pointed rendering them tough, stiff and easy driving, and are warranted

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Cliff's R. H. Wagon Springs,
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Best Wagon Spring on Earth.

Ram's Horn Buggy Springs.

Al so mplete, ready to drop onto bolster.

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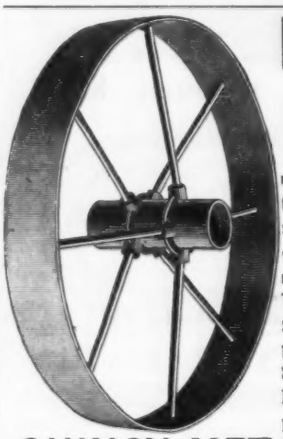

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FOR ALL PURPOSES.

Conceded the best, and used by the leading manufacturers in the United States. The only Wheel in which the spokes are connected to other parts of the Wheel with enlarged tenons, formed in place by heavy pressure and while cold. Send for descriptive catalogue, and mention this paper.

QUINCY METAL WHEEL CO., Quincy, Ill.

Warning to the Trade Against a Dangerous Device.

Experience has taught the trade and the consumer that only a *safe* and *reliable* Horse and Cattle Tie is desirable and that the *fatal danger* of the *loop shirring* up and *choking the animal* is the *great fault* to be *guarded against.* This has been fully accomplished by the *Covert Patent Thimble*, which has a screw with a centrally located eye and a *point* which *passes through the rope* and renders all *slipping* or *shirring impossible.*

At the time the *Covert* Thimble was placed upon the market the only thimbles then being sold were the *Wiard Socket Patent* and the Sargent-Hull Thimble.

To both of these great objections were made, on account of their liability to shirr and choke the animal, and as soon as the Covert Thimble appeared on the market the *sales of the others rapidly decreased* and in a *few years ceased entirely.* At this juncture Sargent & Co., of New York and New Haven, placed upon the market a thimble which was a *direct infringement* upon the Covert Patent.

Their course in the matter has been fully exposed in our Bulletins and the Trade Journals, and is well-known to the trade.

After suffering considerable damage and loss through their infringements several suits were commenced against the infringers in the United States Court, one of which was on thimbles, and a decree was entered against Sargent & Co. sustaining the validity of the Covert patent and granting a perpetual injunction against the infringers.

To avoid the decree and the consequences they would suffer should they disobey it, they began the manufacture of a *thimble without the point of the screw* or pin, in this respect going back to the *old, obsolete, worthless design of the "Wiard Socket."*

That a thimble *without the penetrating point* is acknoledged to be *dangerous* and *worthless* is proven by the *testimony taken in the suit* above referred to, from which we quote the substance, as follows:

Witness Hull testified as to the *worthlessness* of the *Wiard Socket.*

Witness Turner testified that the firm by whom he was employed had not purchased the Wiard Socket for ten years and had not purchased the Sargent-Hull Cattle Tie Iron for 12 years, that the Covert Thimble which was considered better and more practical, displaced such goods.

Witness Byrne testified that his firm had not bought the *Wiard Socket* for over ten years because they were *unsalable.* That they carried some of the "Wiard Sockets and Screws" in stock for years because *they could not sell them.* He also testified that he heard objections made to the use of the "Wiard Socket and Screw" on Cattle Ties, that they *would slip* on account of the *end of the screw being blunt*, and that the customers and users of horse and cattle ties, and the trade generally made such objections, that he did not think the "Wiard Socket and Screw" practicable because the screw is *liable to be turned* and *one turn* of the screw *would loosen it.*

Witness Leeds testified that his firm had the Wiard Socket and Screw in stock in the store for nine or ten years to his knowledge, because there was *no sale for them.*

Witness Osborne testifies that his firm had the Sargent-Hull Cattle Tie Iron in stock as long as he had been a salesman in the store, which was over ten years, because there was *no sale for them*, and because Covert's Thimble displaced them.

The above witnesses are representatives of some of the largest and most responsible jobbing houses in the United States.

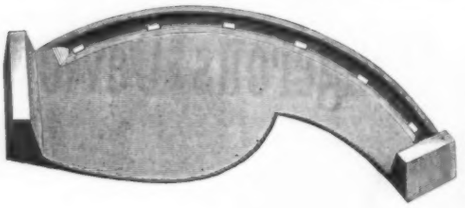
From this testimony it will be seen that any dealer who purchases a thimble *without* a *pointed screw* is almost certain to have the goods *remain upon his hands* as soon as his customers discover the fact, and should he sel them the consumer runs the great risk and danger of having his animals *choked* to *death.*

We therefore *caution* all dealers and consumers to *carefully examine* all the *thimbles* and *rope goods* before purchasing, and be *positive* that the *necessary point is on the screw, or our Trade-Mark on every label or tag.*

By so doing they will *protect themselves against loss and damage* and guard against imposition.

COVERT MANUFACTURING COMPANY,

WEST TROY, N. Y.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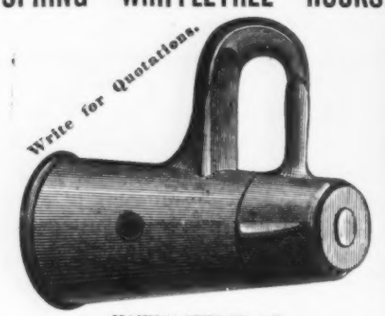

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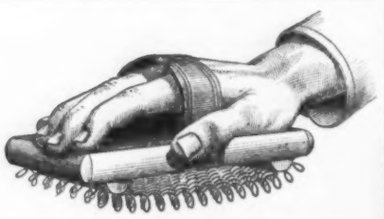

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adjusts itself to the shape of the various parts of the animal, and *cleanses the skin thoroughly* without cutting, bruising or scratching the skin as with the common sharp toothed comb.

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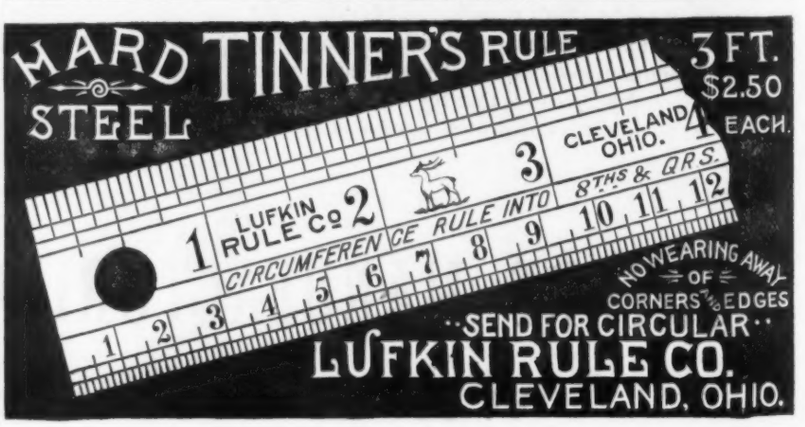

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BAEDER FLINT PAPER CO.,

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P. O. Box 2014, New York City.

WORKS, ARLINGTON, N. J.

Extract from the "Daily Register," the New York Law Journal, July 7, 1888.

ANDREWS, J.

Baeder et al. v. Baeder et al. (two cases)—After a careful examination of the voluminous papers submitted in these cases I am of the opinion that Baeder, Adamson & Co. branded their second quality of flint paper with the word "Baeders," for the express purpose, and with the effect of inducing the public to purchase such second quality of paper as and for the first quality of the flint paper of the plaintiffs. William A. Baeder and Howard R. Kern; and that the defendant, the Russell & Erwin Mfg. Co. have, knowingly and intentionally, actually sold such second quality paper of Baeder, Adamson & Co. as and for the first quality paper of said William A. Baeder and Howard R. Kern. These acts of Baeder, Adamson & Co., and of the Russell & Erwin Mfg. Co. are clearly unlawful, and the motion to continue until the trial of the action the injunction, heretofore granted by Mr. Justice Barrett, in the action brought against those parties by Baeder & Kern will be granted, with $10 costs. I do not think that the mark used by Baeder & Kern can be considered a simulation of Baeder, Adamson & Co.'s first quality mark, nor that it is intended or calculated to mislead or deceive purchasers into taking Baeder & Kern's Paper as and for the first quality paper of Baeder, Adamson & Co. The motion for an injunction, in the action brought by Baeder, Adamson & Co. against William A. Baeder & Kern will be denied, with $10 costs.

WE ARE NOT IN THE COMBINATION.

NICHOLSON FILE CO.,

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FILES

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The Standard Goods.

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MONTGOMERY & CO.,

IMPORTERS OF

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GROBET SWISS FILES,
Chesterman's Tapes, Rules, &c.,
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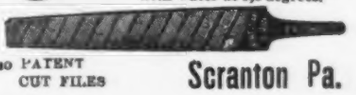

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At the New Orleans Exposition (where a Gold Medal was awarded) a piece of Georgia pine butted, one inch square, on a Testing Machine, registered 1620 lbs. before parting.

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Plain, Roller and Self-Lubricating Bushings.

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FOR

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Wrought Iron and Inside Iron Strapped Tackle Blocks.

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Sole agent for the Graphite Self-Lubricating Bushings and Sheaves. The only Bearings that will stand the strain of heavy work successfuly without breaking, and run without the use of oil or grease.

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For Railways, For Contractors, For Bridge Builders and General Trade.

We would particularly call attention to our

Self-Adjusting Five Roll Roller Bush Blocks

which for strength and durability cannot be equalled by any other make. These Roller Bushed Blocks *give twice the purchase* of the Iron Bushed Blocks, and are far more preferable to use on account of greater ease in hoisting. Try them and find out for yourselves. Call for the "Star Brand" SELF-ADJUSTING FIVE ROLL ROLLER BUSH BLOCKS.

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Factories at Boston, Mass. and Lockport, N. Y. General Store, 33 South St., Frank Baldwin, Manager. H. B. Newhall Co., Agents, 105 Chambers St., New York. C. H. Gurney & Co., 247 Lake St., Chicago, Ill., Agents.

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TACKLE BLOCKS

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Screw Wrenches

MANUFACTURED BY

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Established in 1839.

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Patented July 6, 1880.

Patented July 1884.

Sectional View Illustrates our New Knife Handle, showing Malleable Iron Frame and Shank of Bar keyed into position.

☞ Straight Bar, Extra Long Nut for Screw in Jaw. ☜

The Best Made and Strongest Wrench in the Market.

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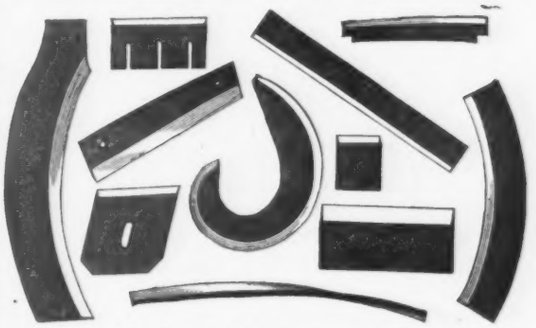

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NEW TACKLE BLOCK,

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The most attractive and the best selling block ever put upon the market. Send sample order and be convinced of the superior merit of the "Union Brand" of Tackle Block over all others. Price guaranteed as low as other manufacturers.

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Our new Patent Can is the best Glue Package yet invented. Saves time, trouble and temper.

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Be sure vignette and signature is on every package.

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Standard Coat & Hat Hook.

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GUARANTEED to be the Strongest Hook on the Market.

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Oct., 1875.
Oct., 1884.
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England, France and Germany.

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Makes a perfect Pipe Wrench of any Common Screw Wrench. It will do the work of any pipe wrench or tongs and sells for one third the price All goods warranted and made of the best tool steel. Send for illustrated circular. General agents wanted for all large cities. Sample sent by mail, postpaid, on receipt of 75c.

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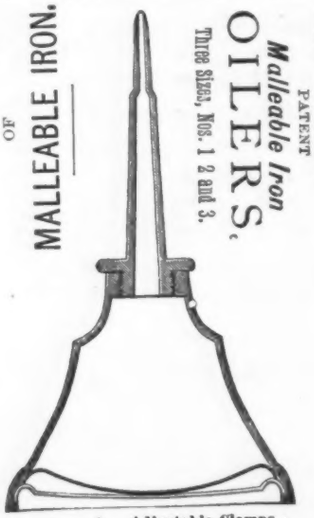

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Adjustable Clamps.. Mall. Iron Hand Lamps. M. I. Hanging Lamps.

New Pattern Heavy Screw Clamps.
Strongest in the market.

For Sale by all the Principal Hardware Dealers.
SEND FOR PRICE LIST.

MALLEABLE IRON CASTINGS of superior quality, and Hardware Specialties in Malleable Iron, made to order.

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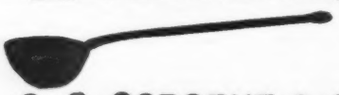

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NEWARK, N. J. STANDARD Manufacturers of PLUMBERS' TOOLS. Send for Price List. Ask your dealer for our make and take no other.

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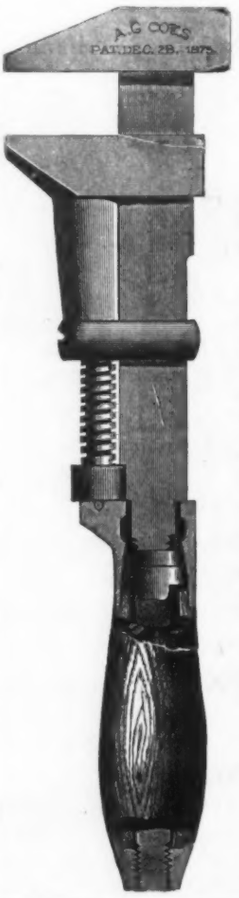

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SCREW WRENCHES,

The Strongest Wrench made, and the only successful re-enforced bar.

The Ferrule is firmly secured in place by a nut screwed on the bar.

Particular attention is called to the way in which the handle is made and fastened to the shank.

This Handle is made better and stronger than heretofore by using our new Cup Tip at the end which encloses the wood and keeps it from splitting. This is the only wrench which has the wood handle firmly secured and held together at each end, and it will stand more rough usage and last longer than any now made. It is not affected heat, cold or moisture.

None Genuine unless Stamped,

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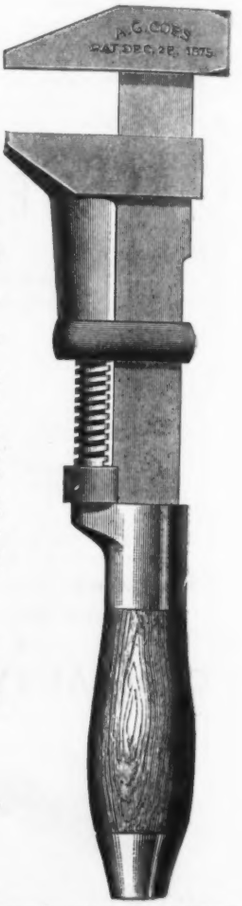

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PATENT CUMBINATION WRENCH.

Case-Hardened Throughout. Parts Interchangeable.

This Wrench not only combines the superior qualities of a Gas Pipe Wrench but also all the requisite combinations of a regular Nut Wrench, thus making a combination which has no equal.

No. 3 PATENT PIPE WRENCH.

The serrated jaws of the Wrench are interchangeable; that is, the same serrated plate may be used for either the stationary or sliding jaw, so that if one plate is broken another can be furnished adapted to either jaw without express designation. The slides, nuts and various parts are also interchangeable, thus easily repairing the Wrench at very small expense, and with as perfect practicability for further use as when the Wrench was new.

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BEMIS & CALL HARDWARE & TOOL COMPANY, Springfield, Mass.

This Wrench can be Furnished with Long Nut or Sleeve.

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Send for sample and prices.

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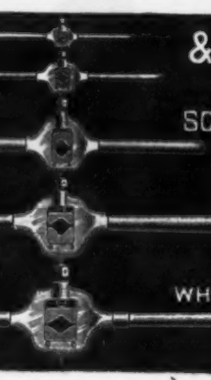

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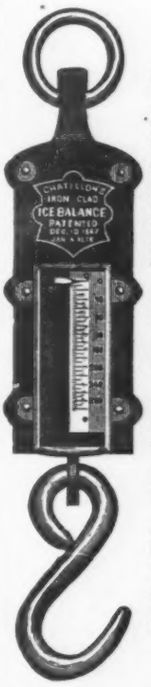

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AT THE WORLD'S EXPOSITION, New Orleans. (Four Gold Medals. All other principal makers competing). Track Scales, Hay Scales, Platform Scales, etc. Important patented IMPROVEMENTS. BEST VALUE for YOUR MONEY For circulars, terms and full particulars, address

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American Oil Stove Co., Gardner, Mass.,

FOR PRICES, &c.

OF THEIR

NEW LAMP STOVE.

About three times the power of the common Lamp Stove and only weighs ¼ lb. more. Positively new and novel. No competition and will "sell like hot-cakes." Our new four-story brick factory gives us facilities for supplying everybody.

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MADE OF WOOD.

No nails or screws used to work out and cut your shelving. Send to

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The Improved Anthony Wayne Washer.

INTERIOR VIEW

This is the only Washer that will give entire satisfaction; it works easy, washes clean, does not tear the clothes and is the general favorite in every household. It is sold upon its merits Always reliable. Never fails. For prices, terms, &c., address

The ANTHONY WAYNE MFG. CO., Fort Wayne, Ind.

We solicit the correspondence of the trade.

Pat. Dec. 15—88.

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REFRIGERATOR DOOR FASTENERS,

HINGES AND OTHER

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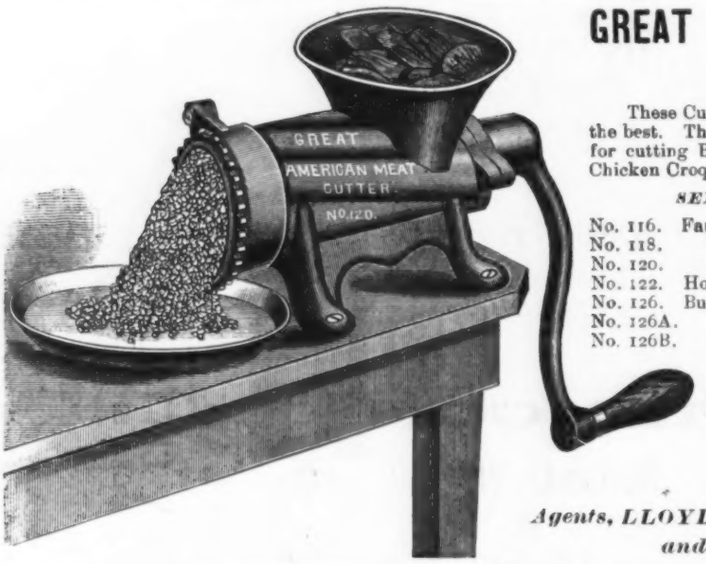

GREAT AMERICAN MEAT CUTTERS

HAVE NO EQUAL.

These Cutters are what the name INDICATES, and are pronounced the best. They have a double cutting operation, and are unequalled for cutting Breakfast Hash, Sausage Meat, Mince Meat, Scrapple, Chicken Croquettes, Hamburg Steak, &c.

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No. 116.	Family Size, with clamp,	each,	.75
No. 118.	" " "	"	1.00
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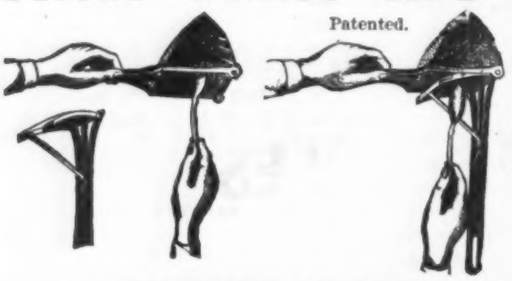

We make this Press with *removable* plunger handle to permit the cups being *easily cleaned*. With the permanent handle it is a most *difficult* thing to *thoroughly clean* a press because the plunger invariably falls *directly* in *front* of the cup every time it is turned over to dump the matter out of it.

Without the plunger it makes a splendid *dipper strainer* for dipping and straining out of the pot. It is also a good *gravy, &c., &c. strainer.* **It makes a great, great improvement.**

ORDER A LOT AT ONCE.

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THE NEW EASY LAWN MOWER.

The leading mower in the market.

Front Cut. Steel. Open Roller Traction. Easy and Noiseless in Operation

The only mower that will cut *Wet Grass, Narrow Borders,* and close to walls and fences. Warranted in every particular

Manufactured by BLAIR MFG. CO., Springfield, Mass.

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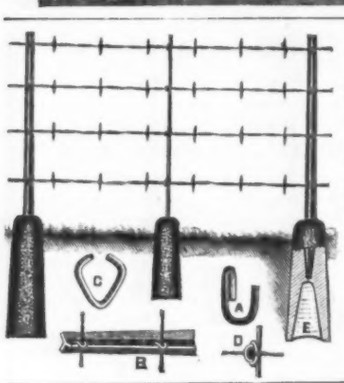
THE DAY MANUF'G CO. DETROIT, MICH. WINDSOR, ONTARIO



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is composed of an Asphaltic Concrete Base and a Rolled Trigonal Steel Bar, and can be manufactured at a minimum cost so as to compete with Wood Posts.

I have the foundation patent on machine for pressing plastic material on to a post or bar for forming a base Also patent on the article and method of manufacture.

Not having the necessary capital and facilities for manufacturing, I desire to place it in the hands of responsible parties on a royalty who will manufacture and sell the post.

Correspondence solicited, and Circulars giving full information on application.

C. S. LONG,

204 Galena St., - Aurora, Ill.

Application Filed for Foreign Patents.

ECLIPSE POST HOLE DIGGER

The *Greatest* LABOR-SAVING tool ever invented for digging holes in the ground. This machine works on a NEW PRINCIPLE, and is UNLIKE ANYTHING in the market.

One man can dig from *two* to *three hundred* holes two feet deep in ordinary ground in one day.

It will dig holes any *size* or *depth* required, and will work successfully in *very hard* or *rough* ground.

You stand up straight while using it, consequently no back-breaking work.

Great inducement to Hardware Dealers. Send for circular and price list to LAGONDA MFG. CO., Successors to P. J. COLE & CO., Box 187 N., Springfield, Ohio.

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With Incidental Consideration of Causes Affecting the Healthfulness of Dwellings,

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For Simplicity and durability, and quality of work, it is unequalled, while for Lightness of draft it excels by a large percentage any other Lawn Mower made. Send for circular and price-list.

CHADBORN & COLDWELL MANUF'G CO., NEWBURGH, N. Y.

Shovels, Spades and Grain Scoops

OF ALL QUALITIES AND DESCRIPTIONS

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CLIPPER HUSKING PIN

A Corn Husker to Suit Everybody.

It fits the Hand perfectly and adjusts itself to large and small hands.
It is plain and neat, and free from all knots and strings, or bulky material on the hand.
Made of Steel and the best of Leather.

For Sale by Wholesale Hardware Houses.

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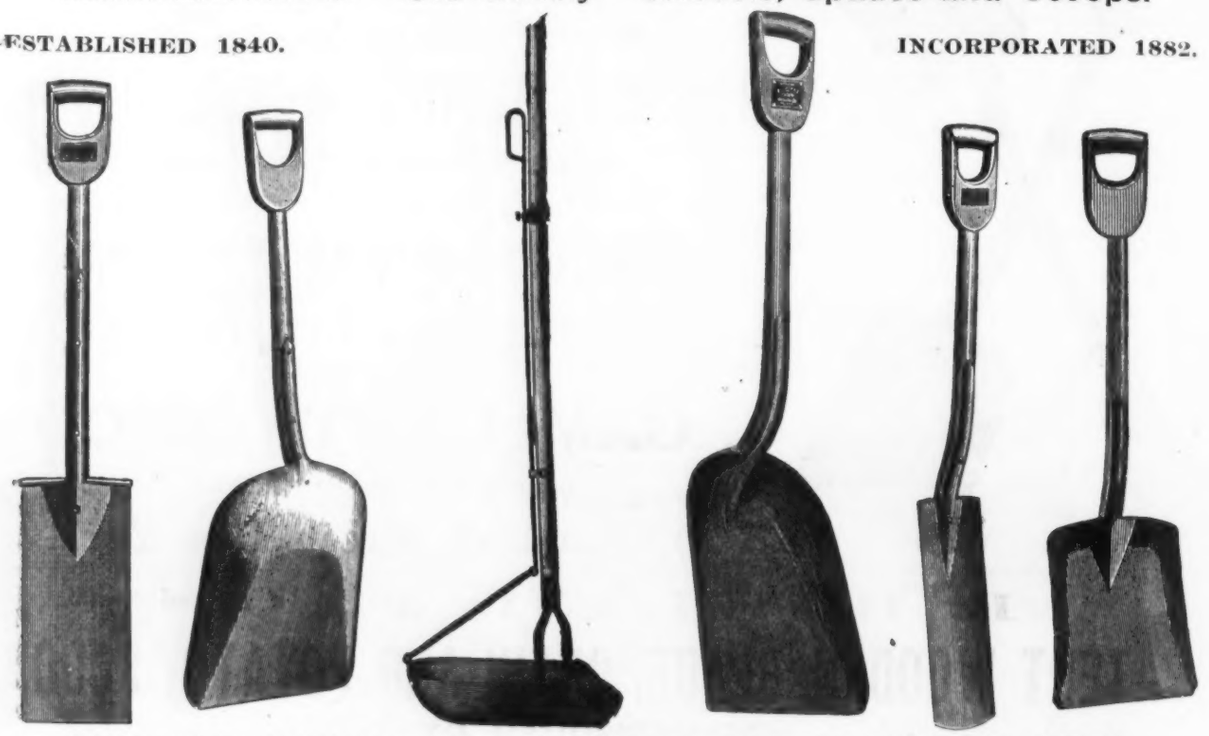

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PATENTED APRIL 21, 1874.

Warranted to cut **Straw, Hay, Oats and Cornstalks with Ease and Rapidity. Strength, Simplicity, Durability,** combined with Rapidity and Cheapness. **Any farmer can keep them in perfect order.**

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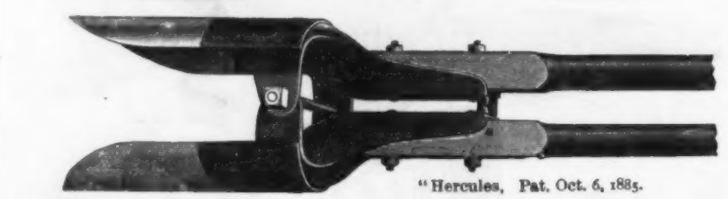
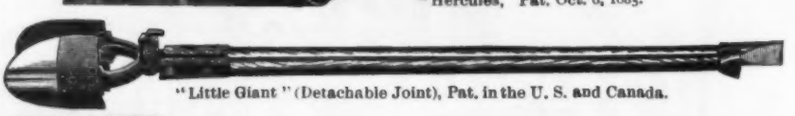
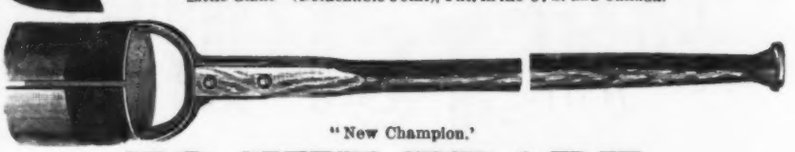


"Hercules, Pat. Oct. 6, 1885.



"Little Giant" (Detachable Joint), Pat. in the U. S. and Canada.



"New Champion."

TO THE TRADE.

Please remember our line of manufacture. We are *Headquarters* for *Hand and Wheel Dump Sulky Rakes, Hay Tedders, Little Giant, Hercules, Scheidler and New Champion Post Hole Diggers, Tree Protectors, Extension Step Ladders and Lightning Potato Digger. Our Goods are not equalled* by any on the market.

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CLOSES ON OUTSIDE OF NOSE.
Only Double Ring Invented.

Champion Hog Ringer

RINGS and HOLDER.

The only Ring that will effectually keep Hogs from rooting. No sharp points in the nose.

Only single Ring ever invented that closes on outside of the nose.

BROWN'S

Elliptical Ring

and Triple Groove Hog and Pig Ringer

Only single Ring that closes on *the outside of the nose.* No sharp points in the flesh to keep it sore.

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SUNSHINE SHOE SET.

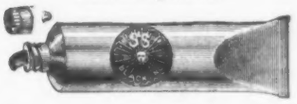
Sensible.
Serviceable.
Splendid.

The only practically indestructible
SOLID KNOT
brushes made. Not susceptible to shrinking or swelling. If clogged the Dauber can be washed out as good as new without injury.

ELECTRO-PLATED METAL,

Solid Bristles, 1¼ inches long.

Handy to Hold, Quick in Operation, Last a Lifetime.



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IN A BOX ALWAYS CLEAN.

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Made only oy

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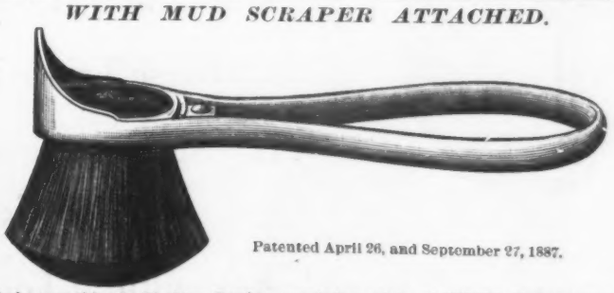
THE ROYAL DAUBER.

WITH MUD SCRAPER ATTACHED.



Patented April 26, and September 27, 1887.

An entirely new thing in Blacking Brushes, consisting solely of TINNED MALLEABLE IRON and PURE BRISTLES. SOLID, ROUND-FACED, INDESTRUCTIBLE.

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This DAUBING BRUSH is made WITH A SCRAPER FOR REMOVING MUD FROM THE CREVICES OF THE SHOES. The utility of this is too apparent to need a word of commendation.

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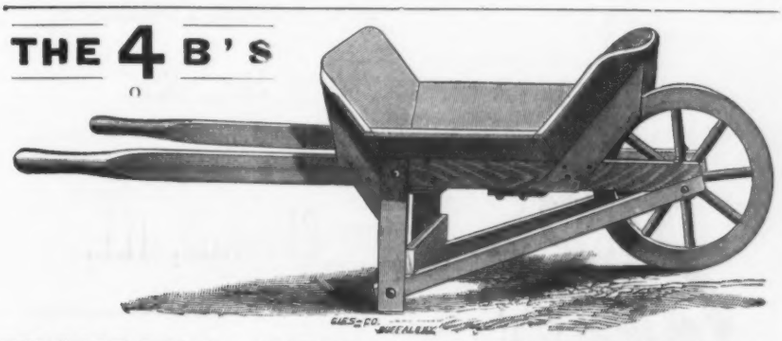

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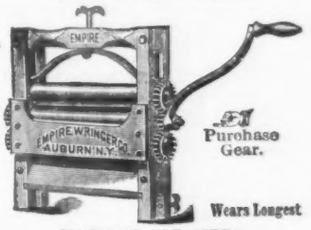

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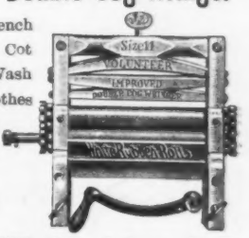

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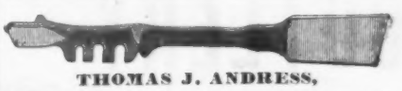

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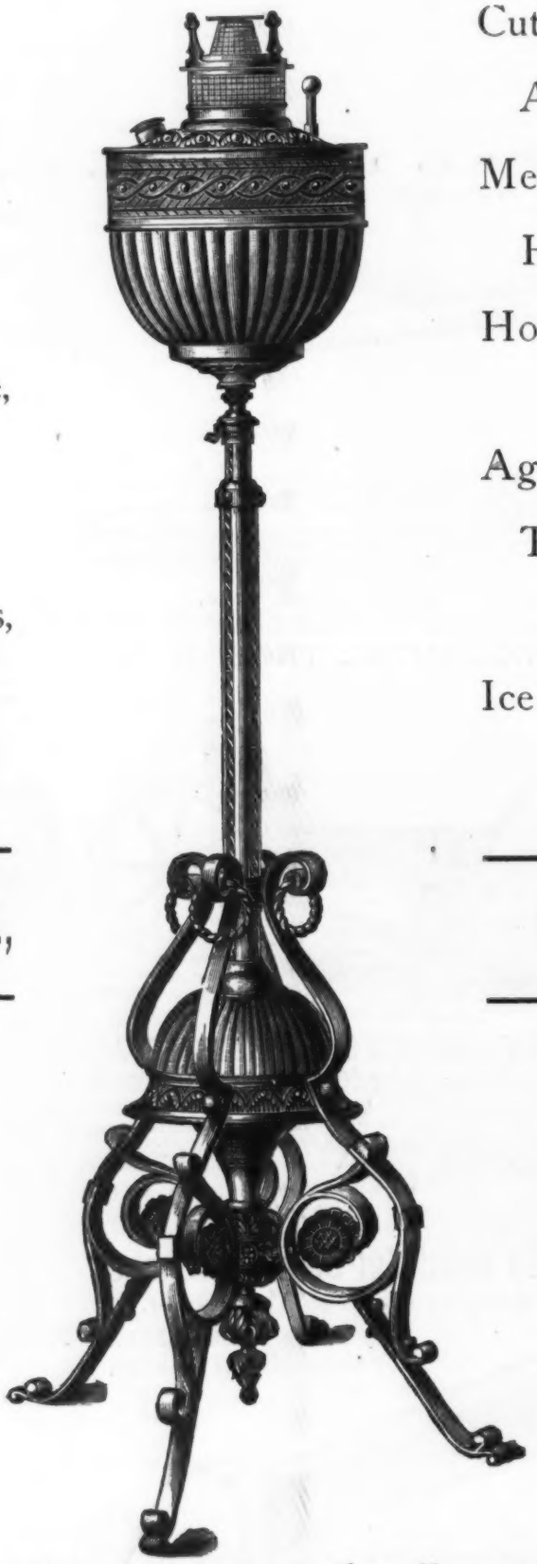

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Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Gunpowder. *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hammers, Steam.
Bradley & Co., Syracuse, N. Y.

Hand Force Pumps.
Union Mfg. Co., 103 Chambers, N. Y.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field Alfred & Co., N. Y.
Jacobus, W. H. & Co., N. Y.

Hardware Manufacturers.
Brand Mfg. Co., New Britain, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Vaughan & Bushnell Mfg. Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John S., 115 Chambers, N. Y.
Guyon, C. F. & Co., 97 & 99 Reade, N.Y.
Horton, Gilmore, McWilliams & Co., Chicago, Ill.

Hardware Shelf Boxes.
Green S. H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.
Sharp H. H. & Co., Philadelphia, Pa.

Hardware Specialities.
Acme Shear Co. Bridgeport, Conn.
Am. Bit Brace Co., Buffalo, N. Y.
Enterprise Mfg Co., Philadelphia, Pa.
Greene Tweed & Co., N. Y.
Paine, Diehl & Co., Philadelphia, Pa.
Rex A. C. & Co., Philadelphia, Pa
Saxton E. R. Buffalo N. Y.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Carriers
Myers F. E. & Bro., Ashland, O.

Hay Cutter.
Wayne Works, Richmond, Ind.

Hay Fork Pulleys
Boston and Lockport Block Co., Boston Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hinges.
Union Mfg. Co., 103 Chambers, N. Y.

Hog Ringers.
Chambers, Bering & Quinlan Co., Decatur

Hoisting Machines.
Box Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington E. Son & Co. Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
McCoy & Sanders, 26 Warren, N. Y.
Morse Williams & Co. Phila.
Sellers Wm. & Co. Phila and N. Y.
Teal Hoist Co., Philadelphia.

Hollow-Ware.
N. Y. Stamping Co., Brooklyn, N. Y.

Horse Nails. *Makers of.*
Essex Horse Nail Co., Essex, N Y.
National Horse Nail Co. Vergennes.

Horse Shoes. *Makers of*
Phoenix Horse Shoe Co., Poughkeepsie, N. Y
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa.

Husking Pins.
E. Blair, Bucyrus, O.

Hydrants, &c.
McLean John, N. Y.

Hydraulic Jacks.
Dudgeon Richard, N. Y.
Watson & Stillman, 204 E. 43d, N.Y.

Ice Cream Freezers.
Shepard Hdw. Co. Buffalo, N. Y.

Indurated Fibre Ware
Union Indurated Fibre Co., N. Y

Injectors.
Aller, Amos, 109 Liberty, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron. *Manufacturers' Agents.*
Cox Justice, Jr., & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Hoffman J. W. & Co. Philadelphia.
Lewis Henry & Co. Philadelphia.
Williams, N. B. Chicago, Ill.

Iron. *Manufacturers of.*
Alan Wood Co., Philadelphia.
Burden Iron Co. Troy N. Y.
Long & Co., Pittsburgh, Pa.
Mahoning Valley Iron Co., Youngstown, O.
Montour Iron & Steel Co., Danville.
Moorhead-McCleane Co., Pittsburgh, Pa
Passaic Rolling Mill Co., Paterson.
Phoenix Iron Co., 410 Walnut, Phila.
Pottstown Iron Co., Pottstown, Pa.
Stuart & McLean, Pittsburgh, Pa.
Troy Steel and Iron Co., Troy, N. Y.
Whitney A. R. & Co. 58 Hudson, N.Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co. Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philip C. V., 15 & 20 Liberty, N. Y.

Iron Brokers.
Kitts & Edward J., Philadelphia, Pa.
Walbaum W. H. & Co., Philadelphia Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia.
Horan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia.
Moar J. J., 430 Walnut, Phila.
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila., Pa.
Hart, Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co., Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 100 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co. 34 to 37 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig, *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet. *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Mill Falls Co., 93 Reade, N. Y.
Prytherch P., 407 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co. Newburg N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Mast, Foos & Co. Springfield, O

Lawn Sprinklers.
McGowan, John H. & Co., Cincinnati, O.

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. P. Athol, Mass
Tower & Lyon, 95 Chambers St, N. Y.

Locks and Knobs. *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co. Bridgeport.
Quackenbush Abram, New York.
Romer & Co., Newark, N. J.
Yale & Towne Mfg. Co., Stamford

Machinery,
Adt John & Son, New Haven, Conn.
Barnes W. F. & John Rockford, Ill
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow C. H., 45 Dey, N. Y.
Brettell & Wilson, Rochester, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin 12 Broadway, N. Y.
Bullard E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank D. B. Providence R. I.
Deering Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray, R. J. & Co., 131st & 4th Ave., N.Y
Gray's Ferry F'd'y & Boiler Co., Phila. Pa.
Harrington, E. Son & Co., Phila., Pa.
Hendey Machine Co. Torrington Ct.
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge Davis & Co., Cincinnati, O
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark N. J
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Prytherch P., 407 W. 40th, N. Y.
Pittsburgh Mfg. Co. Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian May & Co. Cincinnati, O.
Sellers Wm. & Co. Phila.
Snell Henry I., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. F'dy Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Comin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. & Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y. Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Match Safes.
Dangerfield F. S., Auburn, N. Y.

Meat Choppers.
Enterprise Mfg Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N.Y.
Horton, Gilmore, McWilliams & Co., Chicago, Ills.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard, B. K., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Thomas, Dago J., 1 Broadway, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co. Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co. 139 Greenwich, N.Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Washington N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y.

Norway Shapes. *Rollers of.*
Naylor & Co., 99 John, N. Y.
Rowland William & Harvey, Frankford Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co. Lowell Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester.
Wilson J. Fred. Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn.

Oil Stones.
A. F. Pike Mfg. Co., Pike Station, N. H.
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardner, Mass.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt Carmel, Conn.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-Spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co., N.Y.

Padlocks.
Fraim, E. T., Lancaster, Pa.

Pails.
Brower, John, New York.

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington D. C.
Howson & Howson Phila. & Wash'gton
Stocking E. B. Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co., Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited 512 Arch, Philadelphia.

Pig Iron.
Chamberlain, Wheeler & Co., Columbus Ohio.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of.*
Donaldson Iron Co, Emaus, Pa.
Fox John, 100 Broadway, N. Y.
Morris, Tasker & Co., 224 South Third street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harr'son & Howard Iron Co. St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Police Equipments.
Baldwin Jos. & Co., Newark, N. J.
French, S. A., 400 Broome St., N. Y.

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N Y

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, O.
Lagonda Mfg. Co., Springfield, O.

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Powder.
King's Great Western Powder Co., Cincinnati, Ohio.
Laflin & Rand Powder Co., 29 Murray St., N. Y.

Power Hammers.
Belden R. A. & Co., New Haven, Conn.
Bradley & Co., Syracuse, N. Y.
Dienelt & Eisenhardt, Philadelphia
Duncan, W. P. & Co., Bellafonte, Pa.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Niagara Stamping & Tool Co., Buffalo, N. Y

Power Transmission Machinery.
Hill Clutch Works, Cleveland, O.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y
Stiles & Parker Press Co., Middletown, Conn.

Presses, Power, *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.
Watson McDaniel, Phila., Pa.

Pruning Shears.
Henry, John F., Hamden, Conn.

Pulleys.
Edinburg Pulley Co., Edinburg, Md.

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford, Conn.

(See Alphabetical Index, Page 105.)

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis Ind.
Gou'ds Mfg Co, New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co ,Cleveland O
Keystone Engine and Machine Wks Phila., Pa.
Laidlaw & Dunn Co., Cincinnati. O.
Valley Pump Works, Easthampton Mass.

Pumps, Force.
Myers P. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y

Pumps. *Makers of.*
Clark Bros , Belmont, N. Y.
Columb.ana Pump & Machine Co.
Douglas W. & B., Middletown, Conn.
Gould's Mfg Co , 60 Barclay, N. Y.
Silver & Deming Mfg.Co. Salem,O.
Union Mfg Co 103 Chambers N Y

Water Elevator & Purifier Co., Cincinnati. O.

Punches.
Fulton Iron and Engine Works, Detroit, Mich.

Punching and Shearing Presses.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown Pa.
Joliet Steel Co., 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. B. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Bowles Mfg. Co., Bridgeport, Ct.

Razors.
Dame, Stoddard & Kendall, Boston, Mass.
J. R. Torrey Razor Co., Worcester Mass.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia,

Refrigerator Trimmings.
Brainerd & Co., 97 Chambers St., N. Y.

Rivets.
Disosway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rock Drills.
Clayton Air Compressor Works, Brooklyn, N. Y., and Dey, N. Y.

Rolling Mill Machinery.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co. Pittsburgh, Pa
Lloyd-Booth Co., Youngstown, Ohio.
Seaman, Sleeth & Black, Pittsburgh.

Rope Snaps.
Pratt & Letchworth, Buffalo, N. Y.

Rules, *Manufacturers of.*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Balances.
Caldwell, W. H., Rochester, N. Y.
R. B. Hugunin Mfg. Co., Hartford, Conn.

Sash Cords and Chains.
Morton Thos., 66 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clarin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H. & Co., 113 Chambers st., New York.
Ives H. B. & Co., New Haven, Conn.
Sise, Gibson & Co., 100 Chambers, N. Y.

Sash Pulleys.
Palmer Hardware Mfg. Co , Troy, N. Y.

Saws. *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Morrill, Chas., 79 Chambers St., N. Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls, N. Y

Scales. *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons. Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Rienle Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Decatur Coffin Co , Decatur, Ill.
Eurien Bow Mfg. Co., Plantsville, Conn.
Gay & Parsons, Augusta, Me.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S. 208 Quarry Philadelphia
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls, N. Y
King, O'Connor & Co., Baltimore, Md.

Scythe Stones and Whetstones
A. F. Pike Mfg. Co , Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 27 West. N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Schollhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Shoe Brushes.
Thompson Mfg. Co., Lansingb'h, N. Y.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.
Rowlands Sons, T., Philadelphia, Pa.
Sanford Fork and Tool Co., Terre Haute, Ind.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown, Conn.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen, 105 Walker, N. Y.

Spelter.
Manning & Squier, 111 Liberty, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.

Spring Hinges.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
New Haven Staple Works, New Haven, Conn.

Strops.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., *Makers of.*
Dieneit & Eisenhardt, Philadelphia.
Dudgeon Richard 24 Columbia, N. Y.
Dunham W. P. & Co., Bellefonte Pa.

Steam Heating.
Broomell & Sanas, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colville Steam Pump Co., St. Louis, Mo
Hughes Steam Pump Co.,Cleveland, O.
McGowan John H. &Co., Cincinnati.
Norwalk Iron Wks.Co., So. Norwalk.

Steam Traps.
Aller Amos. 109 Liberty, N. Y.
Watson & McDaniel, Phila., Pa.

Steel Figures and Alphabets.
Stutaman J. M., 151 William, N. Y.

Steel Importers.
Abbott Jere & Co., N.Y. & Boston.
Hobson Franc.s & Son, 97 John, N. Y.
Jessop Wm. & Sons, Sheffield, England or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West. N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones B. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Frankford Steel Co., Philadelphia
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss E. W., 83 John, N. Y.
Naylor & Co., 99 John, N. Y.
Pennsylvania Steel Co. Steelton, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N. Y.
Wardlow S. & C., Sheffield, Eng.
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Mobos Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beavor Webb, J., 145 Broadway.
Hicks & Dickey, Philadelphia, Pa.

Steel Nails
Bellaire Nail Works, Bellaire, O Io.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N. Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng. 91 John, N. Y.
Leng John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops
J. R. Torrey & Co., Worcester, Mass.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Truman, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W., Springfield Mass.
Ellrich Hdw Mi. Co., Plantsville, Ct.
Fray, John S. & Co., Bridgeport, Conn
Fulton Iron & Eng. Wks. Detroit, Mich.
Hoague J. B. & Co., Chicopee Mass.
Humphrey Tool Co., Warren, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport Conn.
Saunders' Sons, D., Yonkers, N. Y.

Torches.
Standard Lighting Co., Cleveland, O.

Transom Lifters.
Reiher F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trowels.
Bradley & Pierson Mfg. Co., 298 B'way, N. Y. City.

Trucks. *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Riehle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co., 19 Murray, N. Y.

Tubes, Steel.
Leng John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros. Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Leng John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Vises.
Howard Iron Works Buffalo, N. Y.
New London Vise Works, New London, Conn.
Prentiss Vise Co., 23 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers.
Lanman, E. B. Columbus, O.
Mason Iron Co. Philadelphia, Pa.

Washing Machines.
Wayne, Anthony, Mfg.Co., Fort Wayne Ind.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York.

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

Wheelbarrows.
Bryan Mfg. Co., Bryan, Ohio.
Fuguler & Chapman, 8 Liberty, N. Y

Wheels.
Quincy Metal Wheel Co., Quincy, Ills
I. A. Weston & Co., Syracuse, N. Y

Whiffletree Hooks.
Head's Iron Foundry Utica, N. Y.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.

Window Cleaners.
Bosley, D. W. & Co., Chicago.

Window Cord, *Makers of*
Samson Cordage Works, Boston, Mass

Window Screens.
Darby, Edw. & Sons, Philada., Pa
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren St., N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., L'd, Pittsburgh, Pa
Howard & Morse 45 Fulton, N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co , Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co. Trenton, N. J.
Washburn & Moen Mfg Co Worcester, Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass.
Darby Edward & Sons, Philadelphia
Estey W. S., 71 Fulton, N. Y.
Howard & Morse 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Cleve'd.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse. 45 Fulton. N. Y.

Wire Goods, *Manufacturers of*
Brooks M. S & Sons, Chester, Conn.
Darby, Edward & Sons. Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville
Howard & Morse, 45 Fulton. N. Y.
Knapp & Hague, New York.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
Adt John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
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Wire Nails.
American Tack Co., Fairhaven.
Birmingham Wire Nail Co. Birmingham Ct.
Dunbar, Hobart & Co., 39 Warren, N. Y
Field A. & Sons Taunton, Mass.
Hartman Steel Co. Ltd., Pittsburgh Pa.
Phillips E. & Sons, South Hanover.
Philips Townsend & Co., Phil., Pa.
Pittsburgh Wire Nail Co., Pittsourgh, Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
Wire Goods Co., Worcester
Truman W. E., Whitman, Mass.
Whitney A. R. & Co., New York City.

Wire Rods, Steel
Whitney A. R. & Co., N. Y.

Wire Rope, Iron and Steel. *Makers*
Broderick & Bascom, St. Louis, Mo.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis, Mo.
Upson, Walton & Co., Cleveland, O.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Malin & Co., Cleveland, O.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis Ind.
Udell Woodenware Works, Indianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Fall N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co Springfield, Mass.
Billings Spencer & Co., Hartford Conn.
Coes Wrench Co , Worcester, Mass.
Utility Wrench Co , N. Y
Williams, J. H., Brooklyn, N. Y.

Wrench Jaws.
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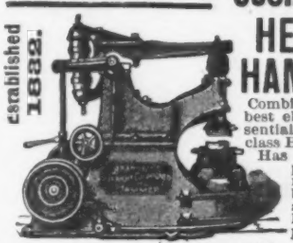

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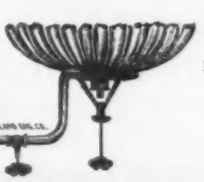

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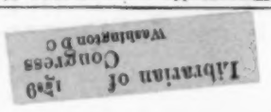

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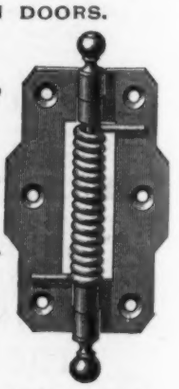

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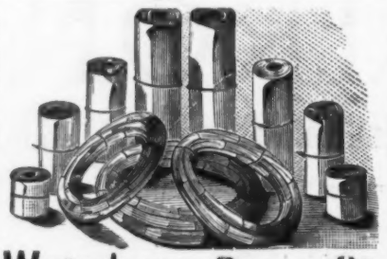

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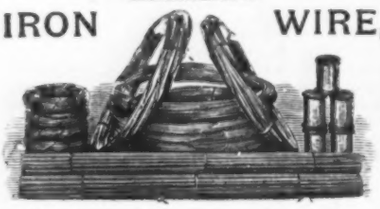

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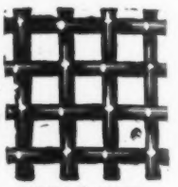

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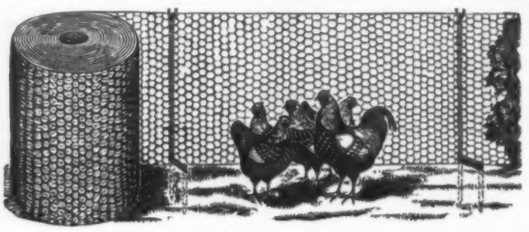

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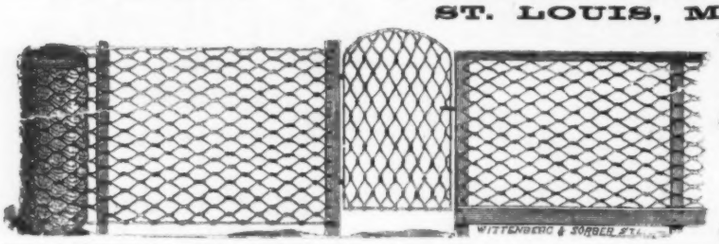

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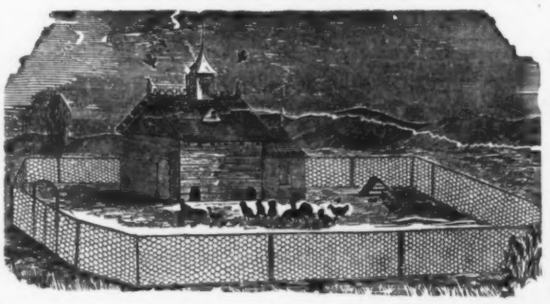

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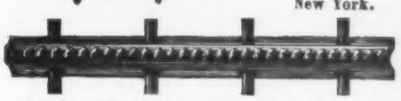

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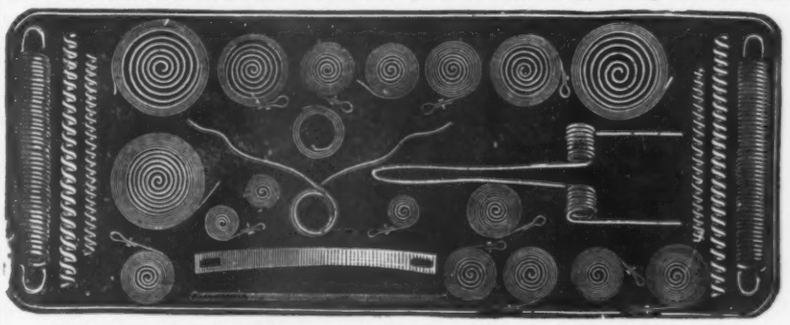

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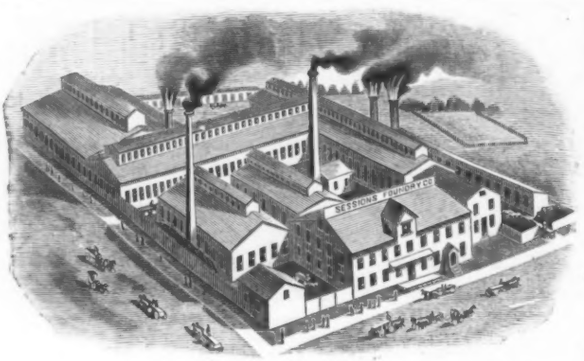

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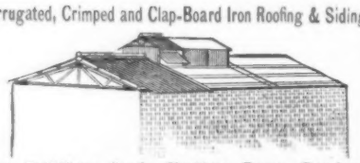

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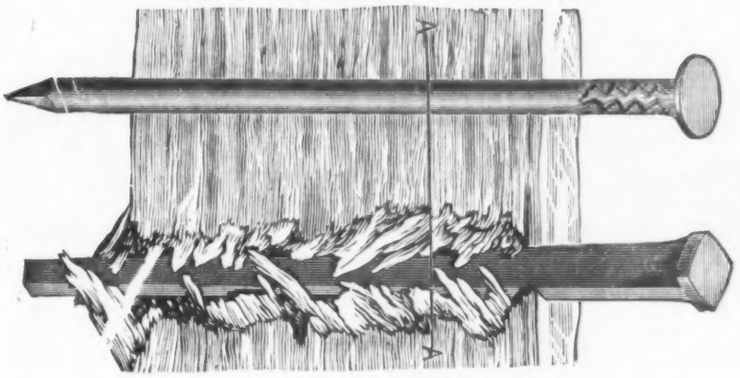

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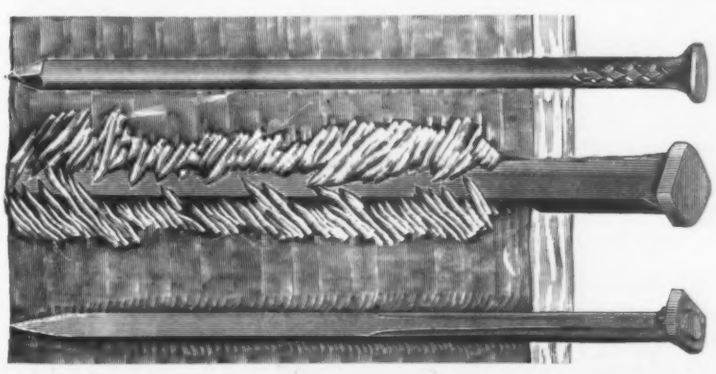

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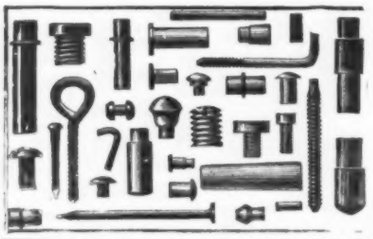

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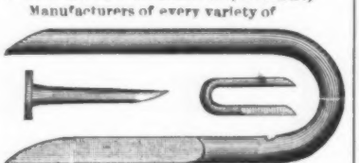

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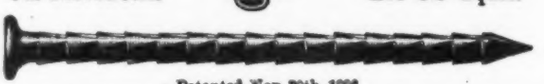

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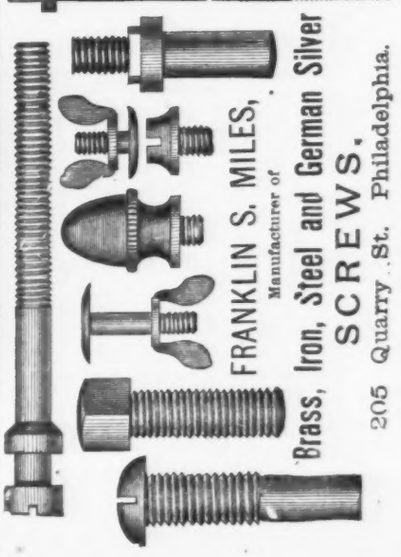

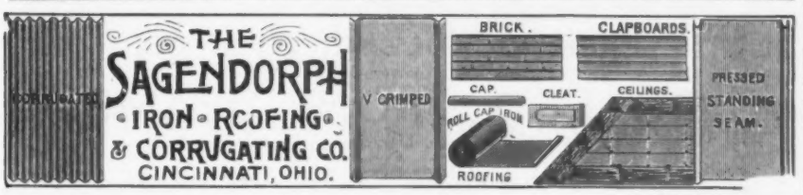

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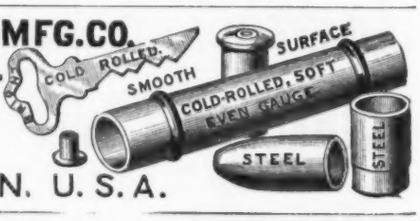

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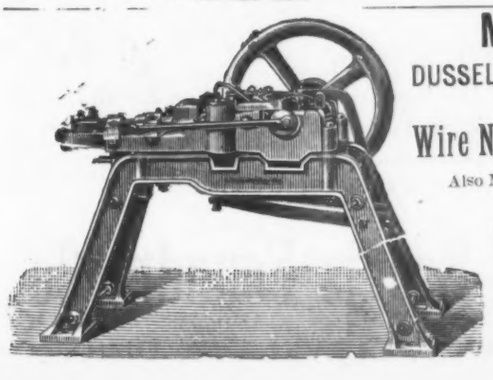

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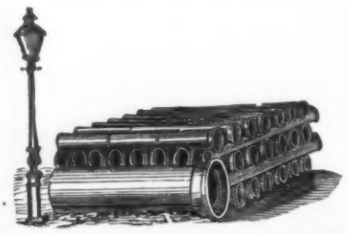

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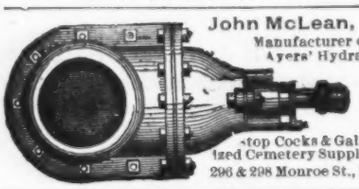

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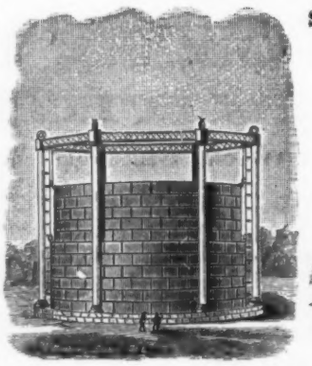

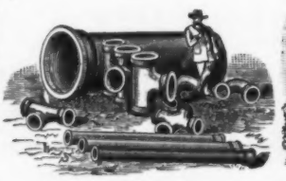

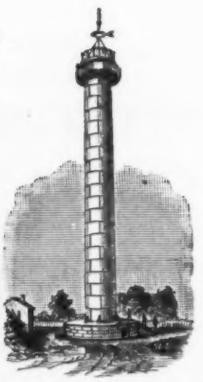

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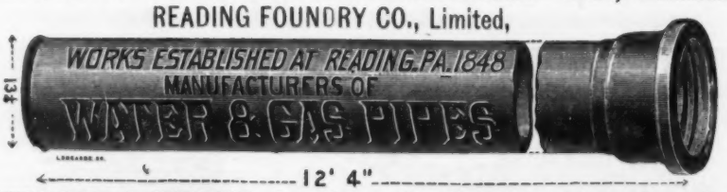

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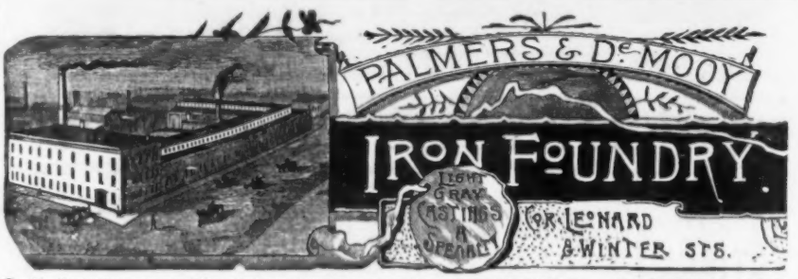

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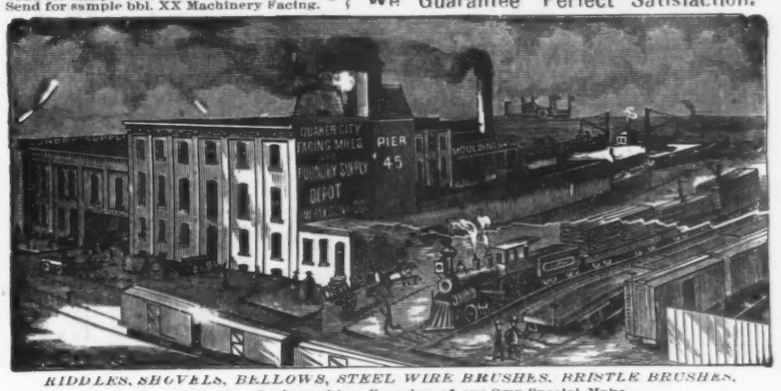

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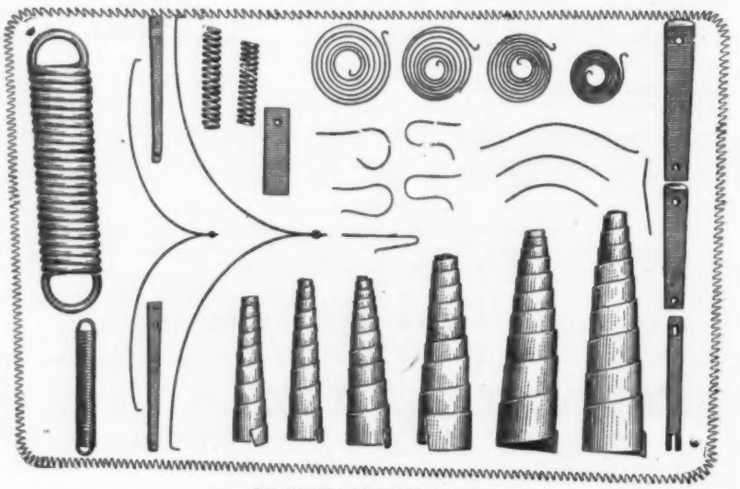

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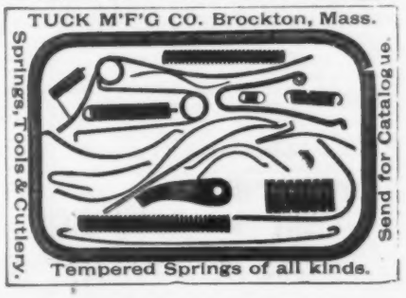

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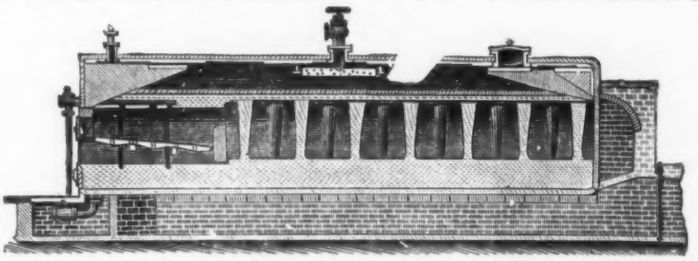

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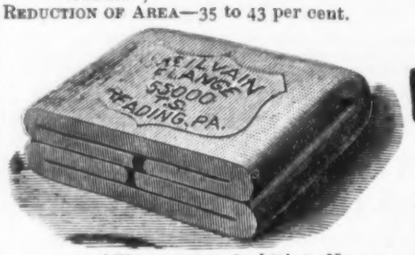

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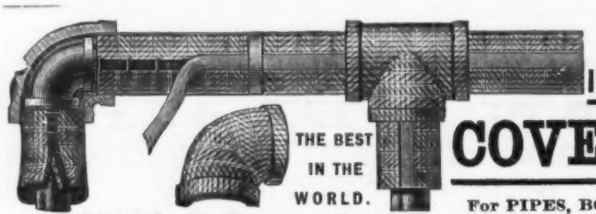

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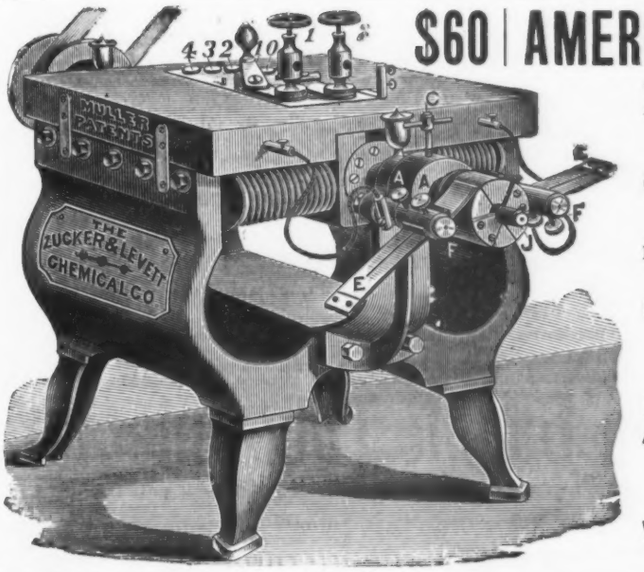

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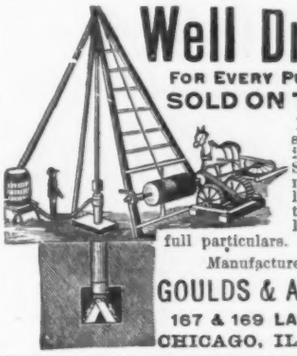

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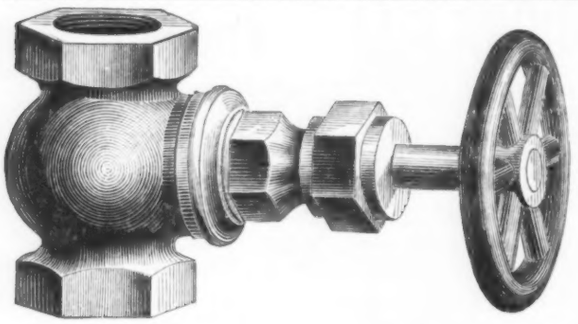

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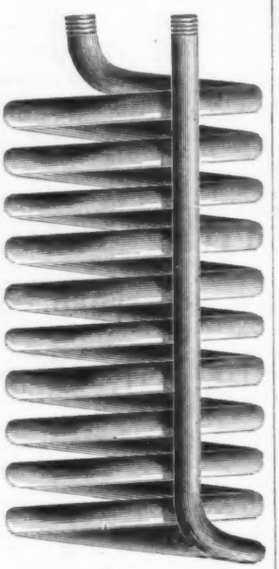

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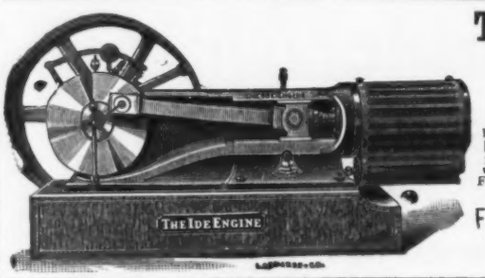

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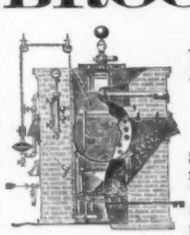

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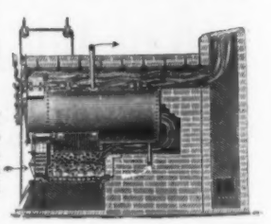

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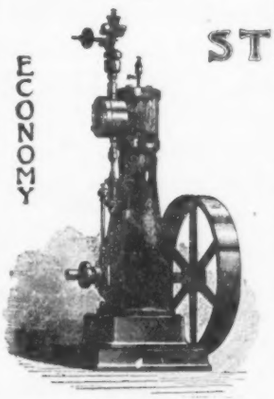

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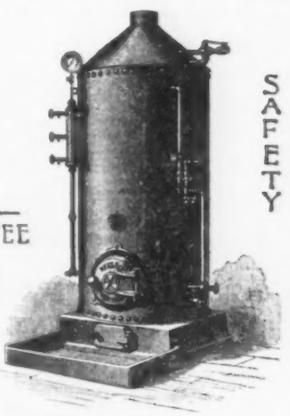

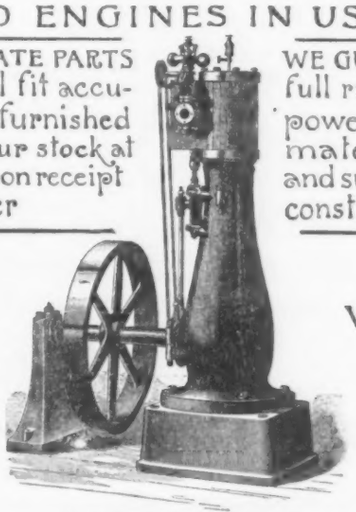

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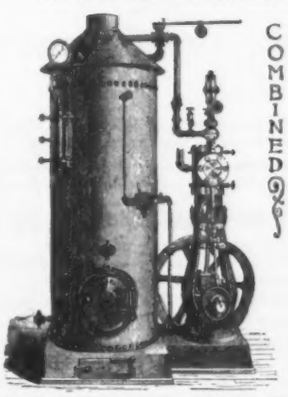

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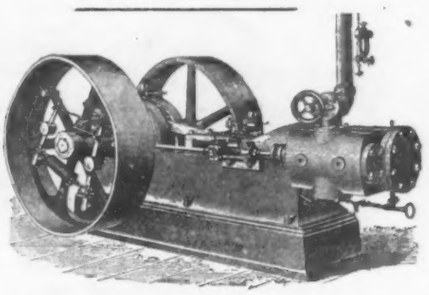

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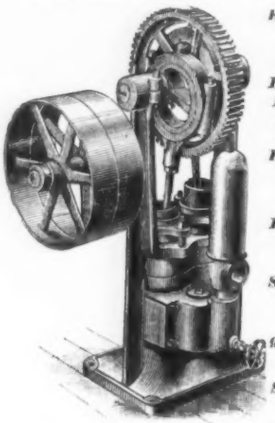

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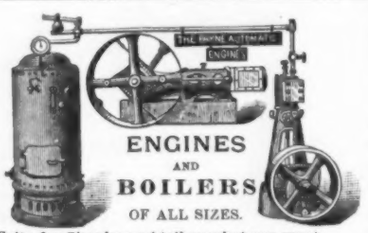

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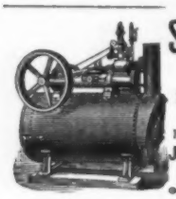

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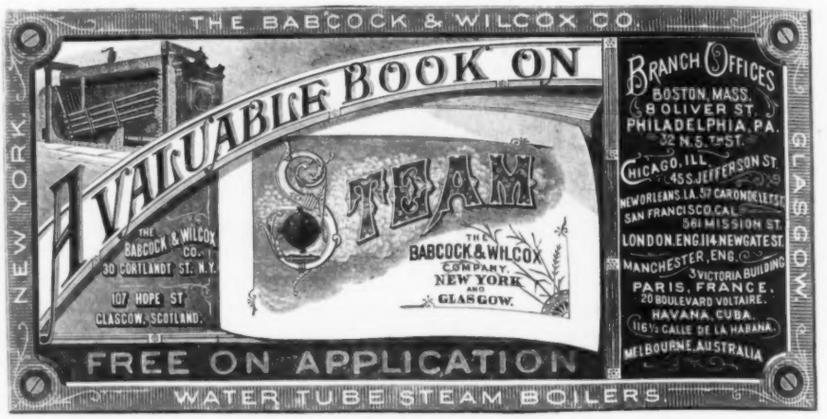

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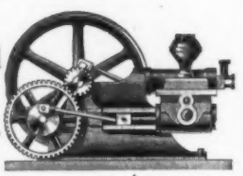

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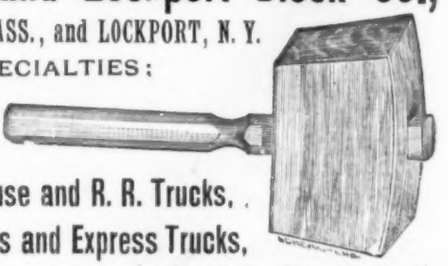

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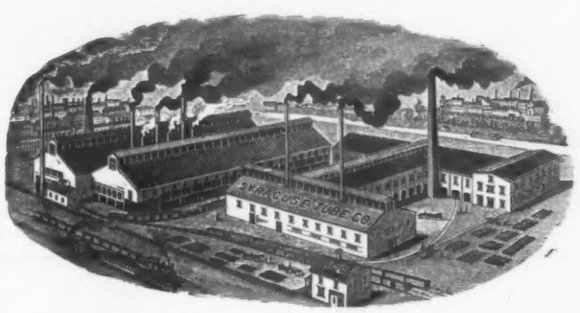

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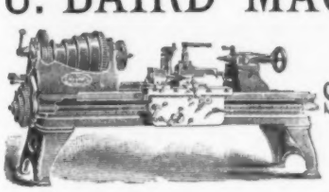

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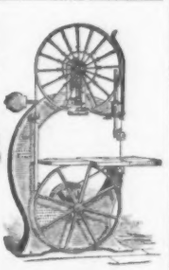

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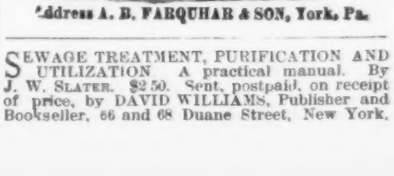

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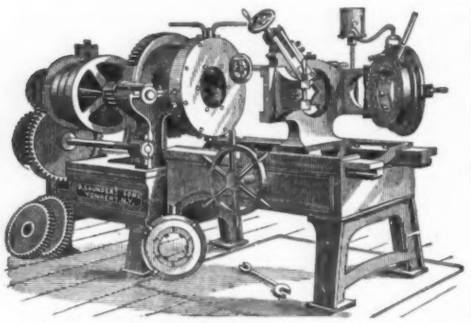

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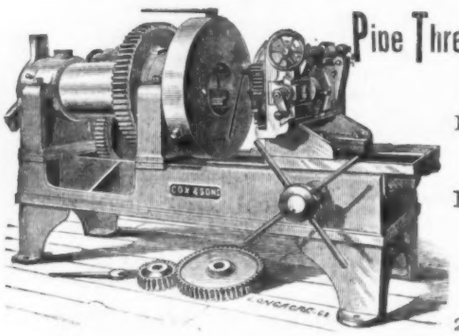

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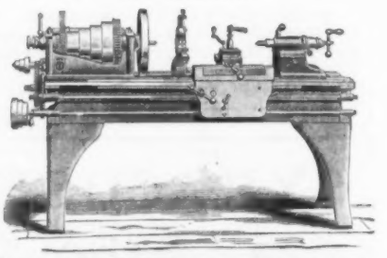

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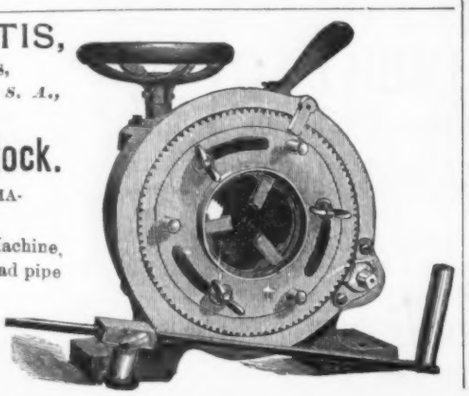

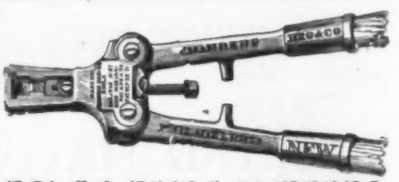

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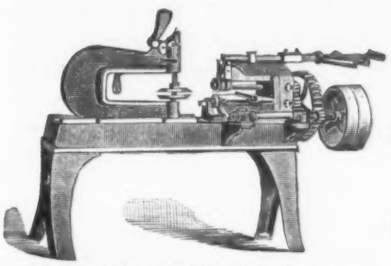

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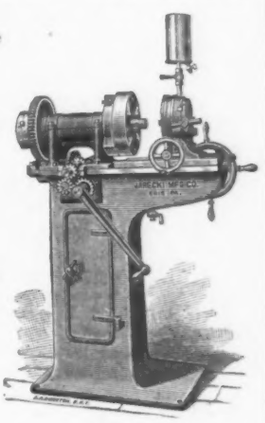

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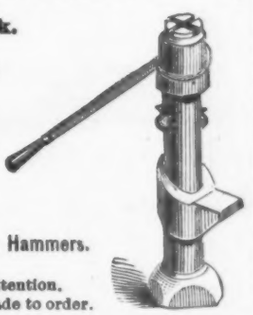

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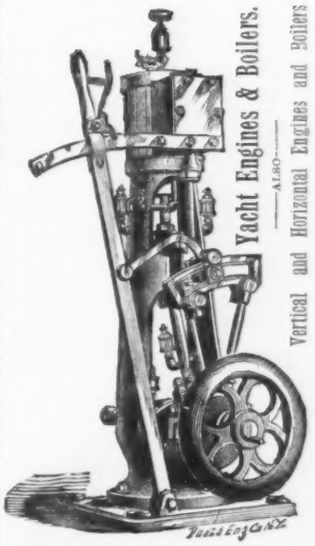

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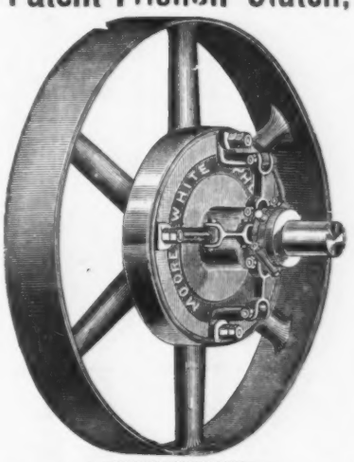

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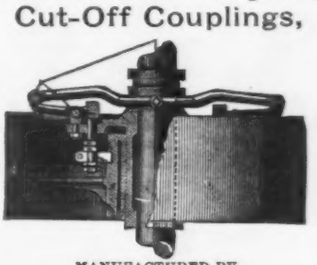

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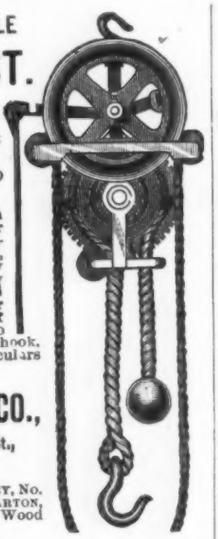

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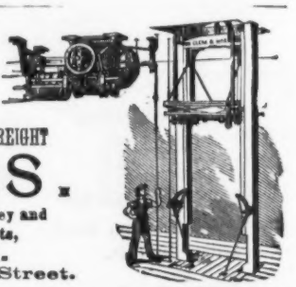

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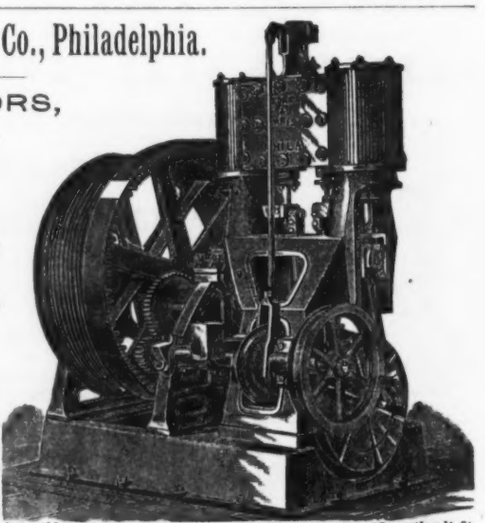

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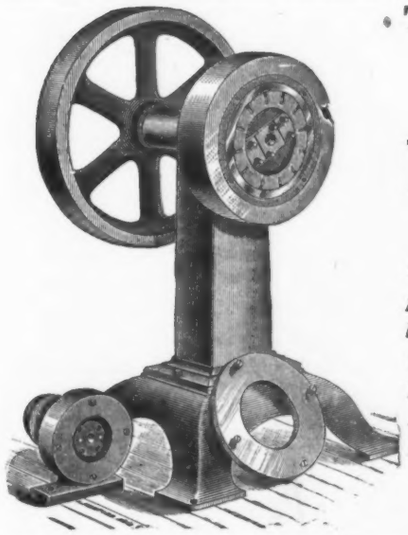

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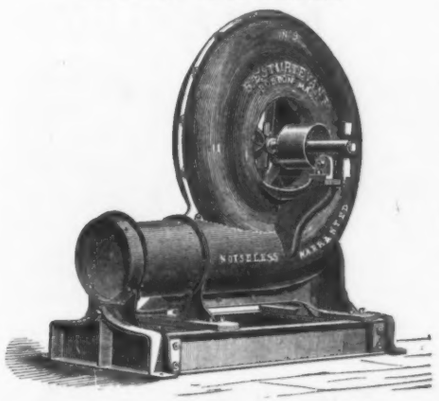

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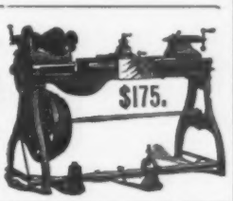

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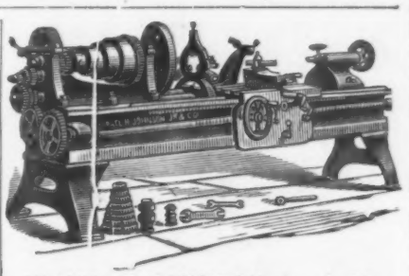

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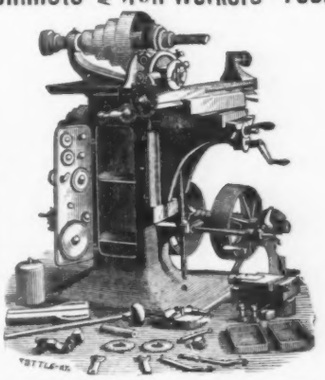

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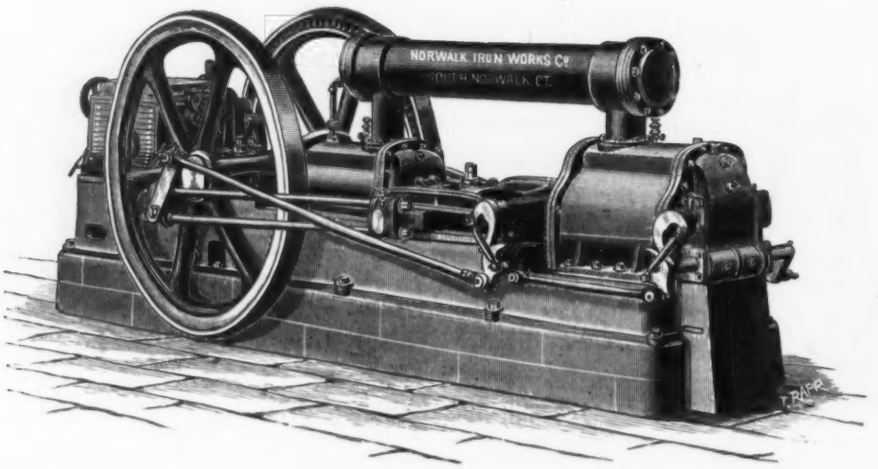

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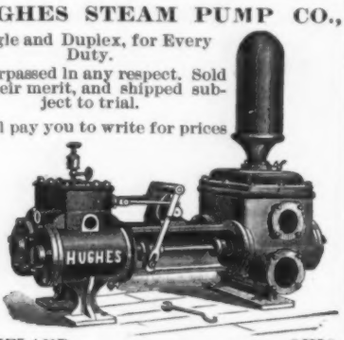

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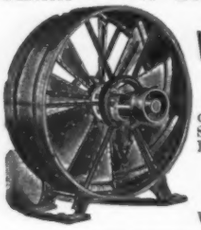

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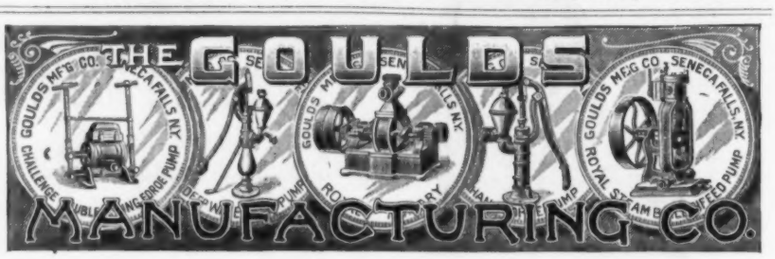

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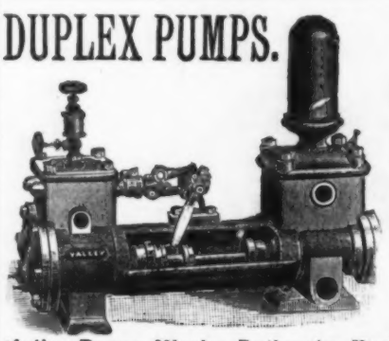

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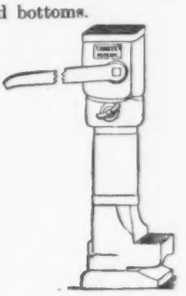

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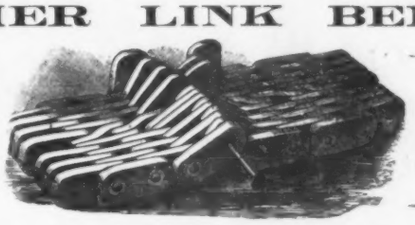

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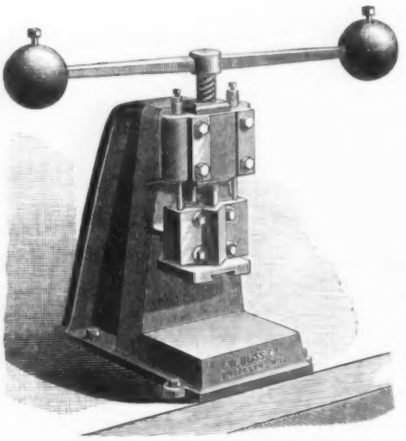

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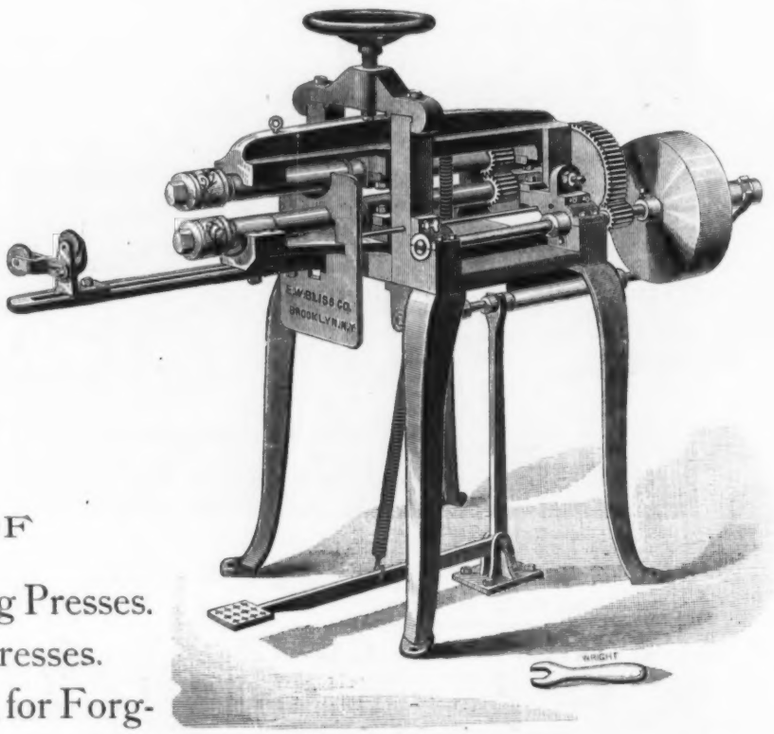

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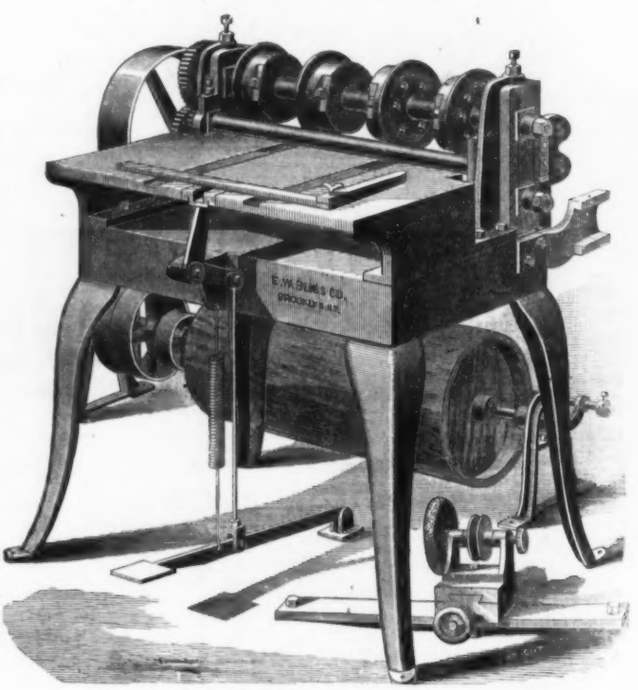

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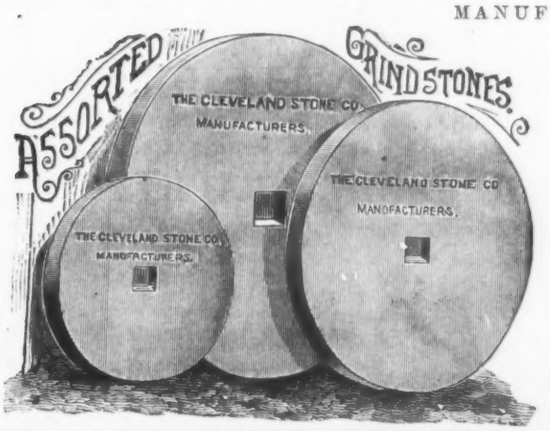

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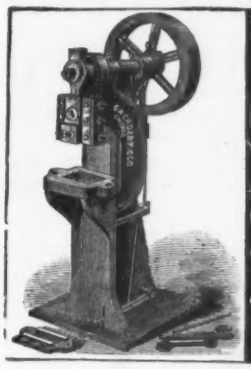

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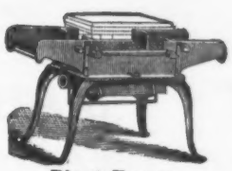

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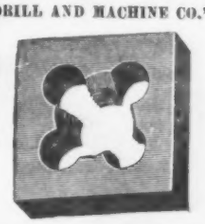

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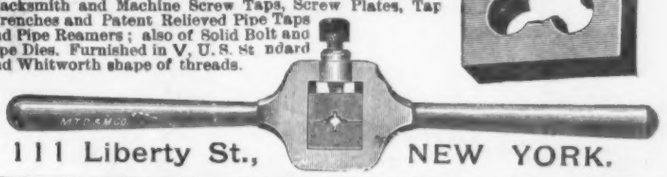

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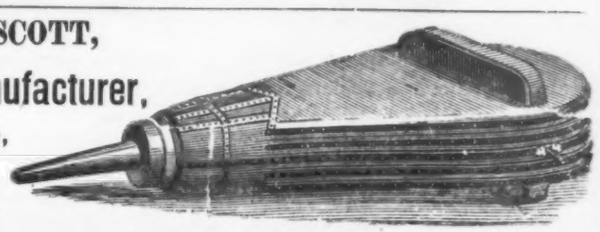

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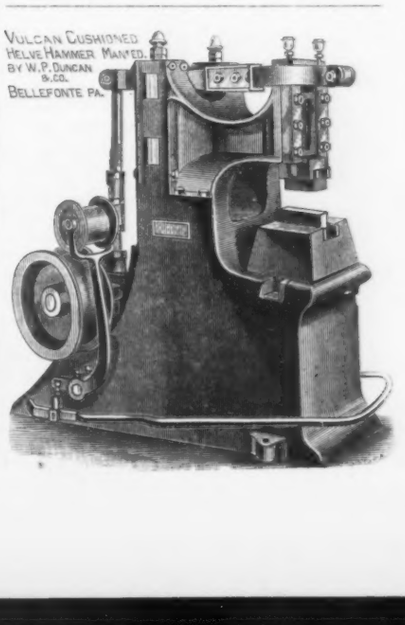

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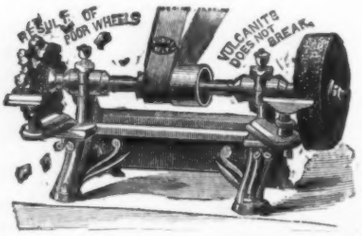

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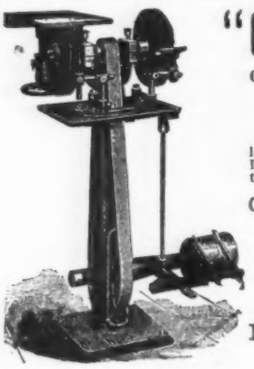

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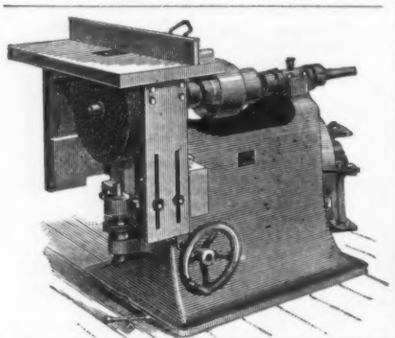

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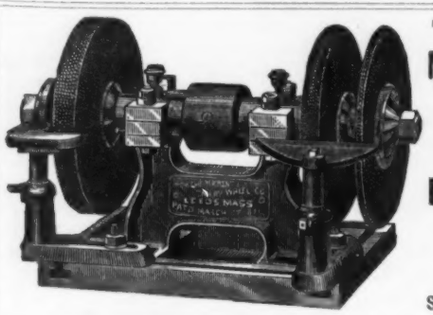

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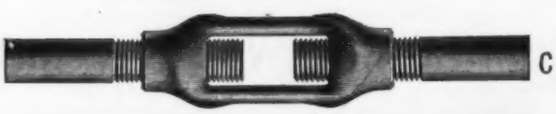
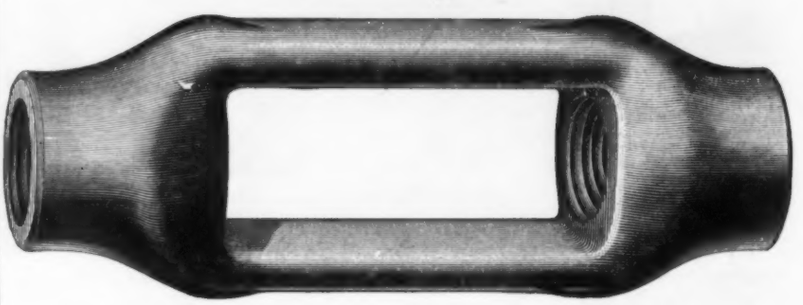
BEST.  CHEAPEST



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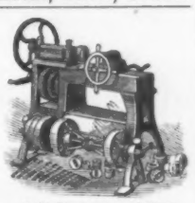

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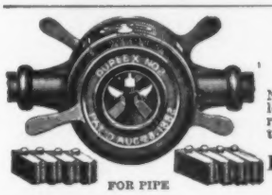

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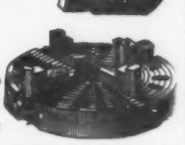

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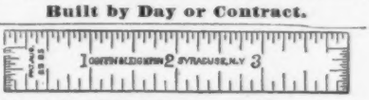

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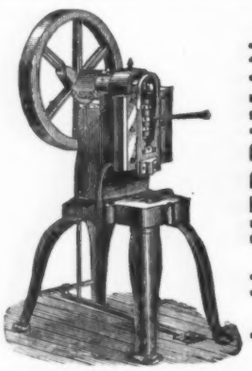

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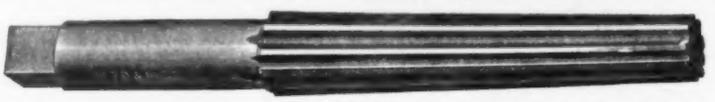

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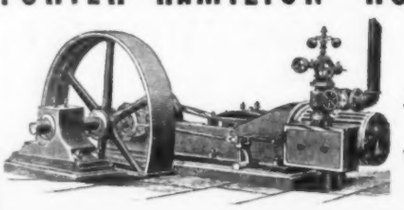

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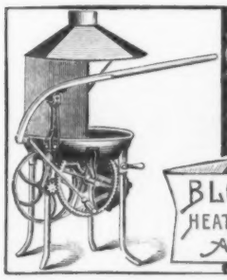

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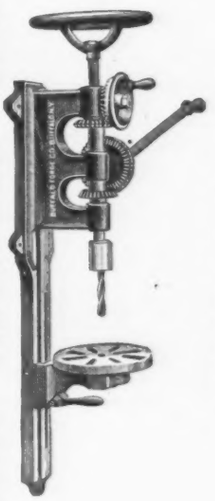

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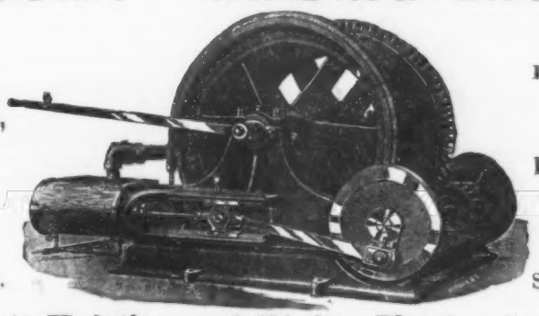

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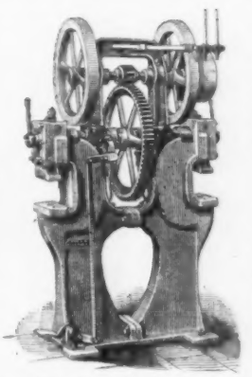

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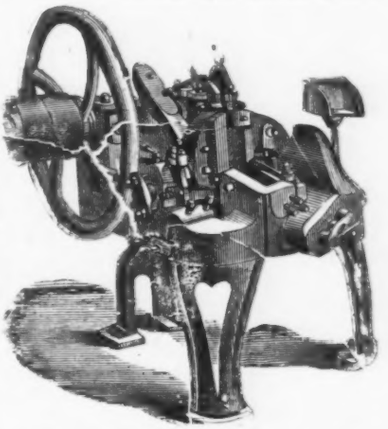

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1 20-inch Lodge, Davis & Co. Lever Drill. New.
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1 set Boiler Maker's Rolls, 8 ft. 3 in.
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1 18 in. x 6 ft. Screw Cutting. " "
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1 15 " " " "
1 20 " Horizontal Engine; and 30-Horse Return Tubular Boiler; first-class order; complete; all castings, fittings and stock.

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1 each " 18 in. x 8 and 10 ft.
1 " " 17 in. x 8 ft.
1 " " 16 in. x 6, 8 and 10 ft.
1 " " 14 in. x 6 and 8 ft.
6 " " 12 in. x 5 ft.
2 " " 11 in. x 4 ft. and 5 ft.
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12 in. stroke Crank Planer. Good.
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50 Standard 20-in. Drills.
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One Heavy Plate Shear, 48-inch throat.
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Upright Tubular Boilers, 15 ft long 60 in diam.
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Stacks, 30 to 50 ft. long, 30 in. diam.
One Crane (Iron) about 5 tons.
One Crane about 5 tons capacity.
Boshes, Steam Piping (cast and wrought iron).
Blast Pipe, Cinder Buggies, Tanks, &c.
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The above are in good order, and for sale in lots to suit for immediate delivery.

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ROLL TURNING LATHES BLOWER AND ENGINE.

One Single Roll Turning Lathe, 18 in. Roll
" Upright Engine, 6½ in. x 17 in.
" Root Blower No. 7.
All in good order.

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ROLLING AND NAIL MILL MACHINERY FOR SALE.

Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).
One 16-in. Nail Plate Train of three stands of rolls, with pinions, tools and fixtures complete.
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One 500-Horse-Power Corliss Beam Engine, with condenser, pumps and other connections.
70 Nail Machines.
3 Spike "
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ONE OF GEORGE H. CORLISS'S UPRIGHT ROLLING MILL ENGINES;

Cylinder, 32 in. x 60 in.; Shaft, 17 in. Diameter, with fly wheel of 25 tons weight and 20-foot diameter fitted to the shaft; *also* 1 Berriman Heater, 4 feet diameter, 12 feet high, with steam and exhaust pipe and fittings for same; *also* 2 Sturtevant Steel Pressure Blowers, 6 ft. diameter; Outlet, 20 x 24, with 14 in. pulley on each side for 12-in. belt. Address

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WILLIAM C. WHITNEY,
Secretary of the Navy.

FOR SALE, CHEAP, Wire Machines.—6 second-hand Wire Nail Machines. 2 Rattlers or Polishers, 1 Emery Wheel, stand and wheels complete; 1 Engine Lathe, nearly new, for making dyes, and in first-class condition. Have been run about eight months, and of the latest pattern. The machines will cut from ⅛ in. to 3½ in. nail. Very strong and durable machines, and of latest improved style. For particulars please refer to me. All in running order. GEO. A. CARTER, Box 434, Brockton, Mass.

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FOR SALE—IMMEDIATE DELIVERY.

One new Star Tool Co.'s Cutting-off Machine, capable of cutting 5-in stock.
Two new Star Tool Co.'s Traverse Drills.
Twenty new modern Lathe and Planer Chucks, popular makes, all sizes, at large discounts from manufacturers prices.

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ENGINES AND BOILERS.

One 18 x 48 Horizontal Corliss Engine.
" 16 x 32 " Wright "
" Copeland & Bacon Double Hoisting Engine, 8½ x 10.
Two Horizontal Tubular Boilers, 80 H.-P.
One No. 6 Knowles Steam Pump.
" Worthington Duplex " 7½ x 4½ x 10.

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Four 75 Horse-Power Second-Hand Boilers, with Hartford Steam Boiler Insurance Company certificate to carry 80 pounds. Price $350 each.

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For sale, three 60 H.-P. Vertical Tubular Boilers (will guarantee 80 lbs. or over, Hartford inspection). Good as new. Only used six months. $300 each on cars, cash or exchange for other material.

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Enquire for particulars of the

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80 H.-P. Vertical Engine; first-class order.
20, 30 and 50 H.-P. Horizontal. " "
25 H.-P. Portable Engine and Boiler.
Double 6-in. Hoisting Engine and Boiler.
Single 8-in. Hoisting Engine and Boiler; first-class order.
4 H.-P. Otto Gas Engine; first-class order.
33 x 11 ft. Planer. " "
25 in. x 12 ft. Screw-Cutting Lathe; first-class order.
20 in. x 8 ft. Screw-Cutting Lathe; new.
18 in. x 8 ft. Screw-Cutting Lathe; new.
15 in x 6 ft. Screw-Cutting Lathe; new.
14 in x 6 ft. Screw-Cutting Lathe; new.
Engine Boiler, Rock Drills, Chain Elevator and Conveyers.

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Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

60-INCH LATHE WANTED AT ONCE.

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About ten tons second-hand T Rail, 20 lbs. and fifty tons same, 35 lbs. to the yard. Also two dump car trucks.

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With new Dam and Flood Gates,

Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.

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75 Tons Stove Plate.
100 Tons Machinery Iron.
Also Old Iron and Metals of all kinds.

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FOR SALE.—A first-class Boiler and Sheet Iron Business in a thriving Western city of 100,000 inhabitants. Shop has been in operation eight years and has a growing and profitable business which can be largely increased. Good buildings, power tools, and first-class location on R. R. track. Good reason for selling. Correspondence and investigation from parties meaning business solicited. Address
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The real estate and buildings now occupied by the Watertown Steam Engine Co., of Watertown, N. Y., will be offered for sale. The property covers about four acres; has an unfailing water power on the Black River estimated at 225 H.-P. Consists of machine shop, foundry, boiler shop, blacksmith shop, store houses and tenements. The buildings are equipped with line shafting, and could be adapted to a large variety of manufacturing purposes. Moderate cost of labor, combined with low freight rates and nearness to raw material, with an abundant water power, make Watertown an exceptionally good point for manufacturing. It is essentially a manufacturing town.

The property can be divided and sold in parcels if desired. Property is sold because the business has outgrown its present quarters and is to be moved to another location in the same city, where more room is available.

Address WATERTOWN STEAM ENGINE CO., Watertown, N. Y.

WE have at our Buffalo store, 415 Hamburgh street, a number of second-hand Locomotive, Upright and Horizontal Boilers, with good flues and in good serviceable condition, which we will sell at a sacrifice.

For further information call or address above number, or to

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WE have on hand for quick delivery:

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Double Chain Screw Pulley Blocks. Overhead Railway. Gear cutting a specialty.
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Correspondence invited from manufacturers seeking new locations, or from parties wishing to engage in manufacturing enterprises.

Full information given regarding the many advantages offered by our city as a manufacturing centre, among them being 16 lines of railroads; coal at 50 cents per ton, &c., &c,

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FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock, Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85 two stories. Warehouse, 22 x 30, two stories in rear. Does a large and paying business, which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade.

Address
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A RARE OPPORTUNITY.—Coke, pig iron furnace, now in blast with 3¼ miles of railroad connecting with trunk line, 2 locomotives and 19 cars; 51 beehive coke ovens, store, dwellings, 75 double and single tenements and all buildings required. 1305 acres all underlaid with superior quality of coking coal, and iron ore bed on 700 acres. Everything in good working order and offered only on account of owner's advanced age. (Folio 3706.) PHILLIPS & WELLS, Tribune Building, New York.

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For New York, New Jersey and New England States.

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Two young men, energetic, reliable and good hardwaremen, solicit correspondence with manufacturers wishing to establish agency or branch in Chicago. Would help carry stock of first-class staple line. Address
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Clean stock of Hardware; will invoice about $7000; in the best city in Central Nebraska; population, 15,000; terms, one-half down, balance to suit purchaser. This is one of the finest arranged stores in the State, and is so neatly constructed its attraction will draw trade. Correspondence solicited. Address

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FOR SALE.—A COMPLETE RETAIL STOCK OF BUILDERS' HARDWARE AND TOOLS. Store located in a flourishing city of 150,000 inhabitants in the Northwest. Has the largest and best trade in the city; business last year $90,000. Stock will inventory from $30,000 to $35,000. Good reasons given for selling. Address

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FOR SALE, IN CENTRAL CALIFORNIA.—Intending to retire from active business, I offer for sale my clean and desirable stock of Hardware, Agricultural Implements, Paints, Oils, &c., &c. The business is now and has been a profitable success for more than 20 years. It is located in the delightful climate of Santa Clara County, Cal., which for health, school and social advantages is unequalled in the United States. $10,000 to $12,000 capital required. For further particulars, address "CALIFORNIA," office of *The Iron Age*, 66-68 Duane St., New York.

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Hardware Specialties to manufacture on contract. Good Patents in our line bought or controlled on Royalty. Local Agents and Canvassers wanted everywhere for our Specialties. Address all correspondence to

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Manufacturers of Hardware Specialties,
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TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia please address

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Hardware Manufacturers' Agent.
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One-quarter interest in a manufacturing company for sale very low.

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For Sale, a lot of Steel Plate 5-16 in. to ½ in thick up to 108 in. wide; will shear in size and shapes to suit.

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—OF—

The Lomas Forge and Bridge Works,

OF CINCINNATI, OHIO.

BY ORDER OF THE PROBATE COURT, the undersigned will receive written proposals up to Monday, October 8, 1888, at 12 M., at the office of the company, No. 217 West Second Street, for the purchase of the above works, consisting of Engine and Boiler, Overhead Travelers and Cranes, Heavy Lifts, Power Presses, Drill Presses, Screw Cutters, Milling Machines, Lathes, Hydraulic Press, Shaping Machines, &c., and all other Machinery, Tools, Fixtures, Office Furniture, Material, Goods on hand, and other personal property belonging to the concern. It is thoroughly equipped for making Bridges, Heavy Forgings, Bridge Nuts, Vises, &c.

Proposals will be received for the whole or any part of the property. This property can be seen at any time on the premises, Nos. 209 to 217 West Second street, and a full inventory found in the office.

Terms of sale—One-third cash and the other balance in six and twelve months, with interest and approved security. All bids subject to the approval of the Probate Court.

CHARLES ANDERSON, Assignee.
John W. Herron, Attorney.

FOR SALE.

A thoroughly well assorted jobbing stock of Shelf Hardware, situated in one of the foremost Missouri River cities. Do an annual business of from $300,000 to $400,000 and will increase each year. Jobbing trade alone of the city for 1887 exceeded $10,000,000. Building now occupied is one of the best arranged and equipped for the easy handling of goods in the West. Can give purchaser lease for three to five years at a very reasonable rent. The city enjoys as favorable seabord and distributing freight rates as any in the West. Territory tributary to the city makes volume of business limited only by capital employed. Sellers do not care to dispose of stock before January 1st, 1889, and by that time can reduce same to between $50,000 to $60,000. The business has always been and is now profitable, and sellers will show the very best of reasons for disposing of stock and good will. Such an opportunity rarely presents itself for purchase of a well-established and profitable jobbing business. For further and more detailed particulars, apply to or address

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Paris Exhibition of 1889.

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The factory is situated four miles from New Haven, Conn., where Mr. Ives lived, and the drive is exceptionally agreeable. The property includes two factory buildings and machinery, a large tenement and a good cottage, good water power, steam engine, and the stock finished and in course of manufacture of augers, bits, braces, and kindred tools, many of them patented, and the good will. The works are running full force and time, and are so organized that experience is not essential to a purchaser. Many of the employees own their dwellings, near the factory, and some of them have been connected with it for generations.

Address CHARLES HOLT, Executor, 29 West Twenty-third Street, New York.

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We have appointed Mr. Chas. C. Loring, No. 4 Liberty Square, Boston, Mass., our agent in place of Mr. A. G. Tompkins, for the sale of our beams, channels, angles, tees and plates in the Eastern States, and any orders entrusted to him will receive our best attention.

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DIXON'S Traction Belt Grease and Leather Preservative

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One half of Basement. All of Subcellar
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WANTED—A man to take charge of a Pittsburgh office as buyer for a line of heavy hardware, iron, nails and glass; must be fully acquainted with these lines. Prefer one who has a personal acquaintance with Pittsburgh manufacturers. State salary expected. Address "PURCHASER," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WANTED.—Position as Practical Bar or Guide Mill Roller. Address "ROLLER," Box L, office of *The Iron Age*, 77 Fourth avenue, Pittsburgh, Pa.

WANTED.—The makers of a line of first-class hand saws want a salesman to carry samples as a side line on commission. Address "L. C.," Lock Box 1086, Philadelphia.

TRAVELING SALESMEN WANTED.—COMPETENT, ENERGETIC AND PUSHING SALESMEN to sell a line of special goods well known to the Hardware, Stove and House-Furnishing Trade; must be familiar with the Hardware Business, and experienced in selling goods on the road, and furnish first-class references. Other lines not conflicting can be taken. Liberal commission. Address "Box 141," Manchester, N. H.

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AN Energetic Young Man of 35, of good character and habits, with 20 years' experience in the Wholesale and Retail Hardware Business, and the road, would like a position at once, inside (wholesale or retail), or on the road, for jobber or manufacturer. Address, "BOLTS," 411 Penn a. Ave., Lansing, Mich.

MECHANICAL ENGINEER AND DRAUGHTSMAN wants position as Assistant Manager, Inspector or Draughtsman. Two years' training in engineering college, succeeded by nine years' practical experience in shops and drawing office in marine, hydraulic and general engineering work. Good references. Address "INSPECTOR," office of *The Iron Age*, 66-68 Duane St., New York

WANTED—Between this time and January, 1889, situation as buyer or traveler by capable young man, with ten years' experience (last three with manufacturer) in iron, steel, hardware and supplies; very best of references. Address "BUYER," Box 919, office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WANTED,—By a well-qualified man position as Superintendent of Rolling Mill. Advertiser has had ten years' experience as manager in sheet mills and can give first-class references. Age, 32. Address, Z. W. OXTON, Wallsend-on-Tyne, England.

FOUNDRY MANAGER wishes to correspond with a firm requiring a practical man; has good organizing ability and accustomed to management of men; competent to run a shop any size. Address "FOUNDRY MANAGER," Box M, 66 and 68 Duane Street, New York.

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A No. 1 MACHINIST-DRAFTSMAN desires a position as assistant superintendent, draftsman or foreman in a manufacturing concern. References concerning ability as inventor, designer and an economical manager of help with marked success in reducing cost of work. Screw machine, jig and automatic tools a specialty. Address "Box 610," Torrington, Conn.

A GENTLEMAN of extensive business experience, and for a number of years manager of a branch house for a large manufacturing company, wishes to make arrangements to take charge of a branch or agency, East or West, for a first-class manufacturing company. No objection to travelling a portion of the time. The best of references in New York Philadelphia and Boston. Address "E. E.," P. O. Box 1283 Philadelphia.

WANTED.—Situation as Superintendent of Machine Works, by a gentleman who has had a good practical as well as theoretical training; understands handling of men to advantage, and the construction of special machines. Address, stating character of work, "D. R.," Box 87, office of *The Iron Age*, 66 & 68 Duane St., N. Y.

WANTED.—A situation by a man of 20 years' experience, as Blast Furnace or Mill Manager, being also an experienced Roll Turner in rails and shape Iron and Steel of all kinds. Can design and superintend the construction of all kinds of mill and furnace machinery; highest references given. Address "IRON AND STEEL," Box H., office of *The Iron Age*, 66 and 68 Duane St., New York.

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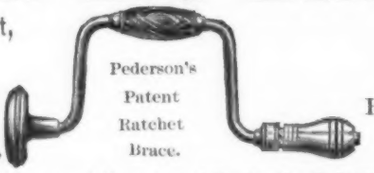

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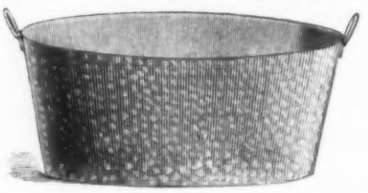

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	Sizes	Single. 1st.	2d.	3d.	4th.
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40	11 x 14 to 16 x 24	11.50	10.75	10.25	9.75
50	18 x 22 to 20 x 30	15.50	14.00	13.00	12.50
54	15 x 36 to 24 x 30	16.50	15.00	13.50	.....
60	26 x 28 to 24 x 36	17.75	16.25	14.75	.....
70	26 x 36 to 26 x 44	19.00	17.50	15.25	.. ..
80	26 x 46 to 20 x 50	21.00	19.50	17.00	.....
84	30 x 52 to 30 x 54	22.00	20.25	18.00	.....
90	30 x 56 to 34 x 56	23.00	21.25	19.00	....
94	34 x 58 to 34 x 60	24.00	22.75	21.00	.....
100	36 x 60 to 40 x 60	26.50	24.50	23.00	.....

	Sizes.	Double. 1st.	2d	3d	4th
		E F H D	I E H D	H H D	H B D
25	6 x 8 to 10 x 15	$13.00	$12.50	$12 00	$11.50
40	11 x 14 to 16 x 24	16.00	15.00	14.50	....
50	18 x 22 to 20 x 30	20.50	19.50	18.50	...
54	15 x 36 to 24 x 30	22.00	20.75	19,50	...
60	26 x 28 to 24 x 36	25.00	23.00	21.50	....
70	26 x 36 to 26 x 44	26.00	25.00	23.00	....
80	26 x 46 to 30 50x	28.00	26.50	24.50	....
84	30 x 52 to 30 x 54	30.00	28.00	26.00	....
90	30 x 56 to 34 x 56	31.00	30.00	28.00	...
94	34 x 58 to 34 x 60	32.50	31.00	29.00	....
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40	11 x 14 to 16 x 24	11.50	10.75	10.25	9.75
50	18 x 22 to 20 x 30	15.50	14.00	13.00	12.50
54	15 x 36 to 24 x 30	16.50	15.00	13.50	....
60	26 x 28 to 24 x 36	17.75	16.25	14 75	...
70	26 x 36 to 26 x 44	19.00	17.50	15.25	....
80	26 x 46 to 30 x 50	21.00	19.50	17.00	....
84	30 x 52 to 30 x 54	22.00	20.25	18.00	..
90	36 x 56 to 34 x 56	23 0s	21.25	19.00	....
94	34 x 58 to 34 x 60	24.00	22.75	21.00	....
100	36 x 60 to 40 x 60	20.50	24.50	23.00	..

United Inches.	Sizes.	Double. AA	A	B	C
25	6 x 8 to 10 x 15	$13.00	$12.50	11 00	$10.00
40	11 x 14 to 16 x 24	16.00	15 00	13.50	12.00
50	18 x 22 to 20 x 30	20.50	19.50	18 00	....
54	15 x 36 to 24 x 30	22.00	20.75	18.75	....
60	26 x 28 to 24 x 36	25.00	23.00	21.00	....
70	26 x 36 to 26 x 44	26.00	25.00	22.50	...
80	26 x 46 to 30 x 50	28.00	26.50	33.75	....
84	30 x 52 to 30 x 54	30.00	28.00	25.25	....
90	30 x 56 to 34 x 56	31.00	30.00	27.00	....
94	34 x 58 to 34 x 60	32.50	31.00	28.00	....
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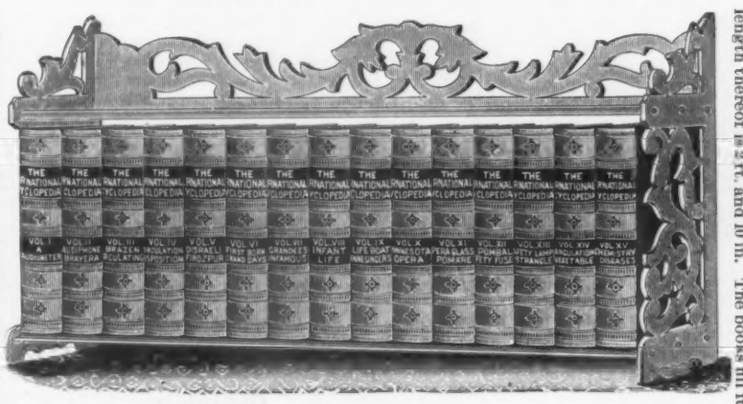

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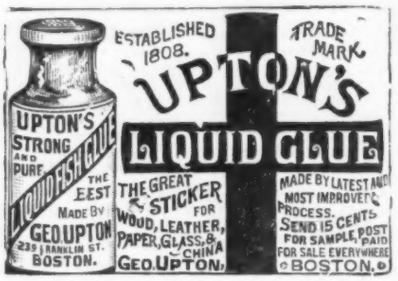

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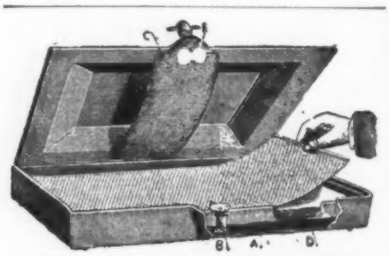

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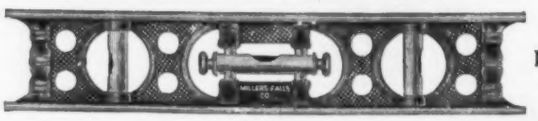
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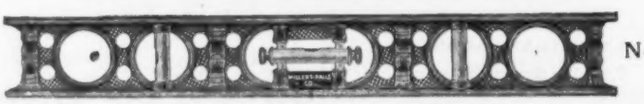
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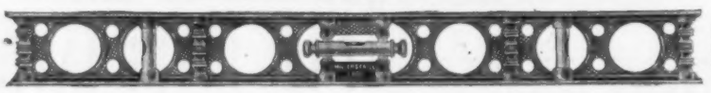
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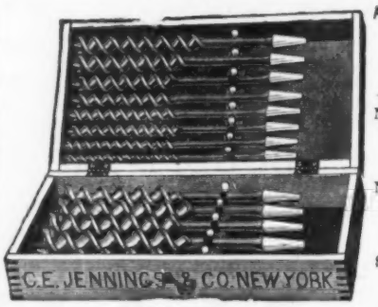

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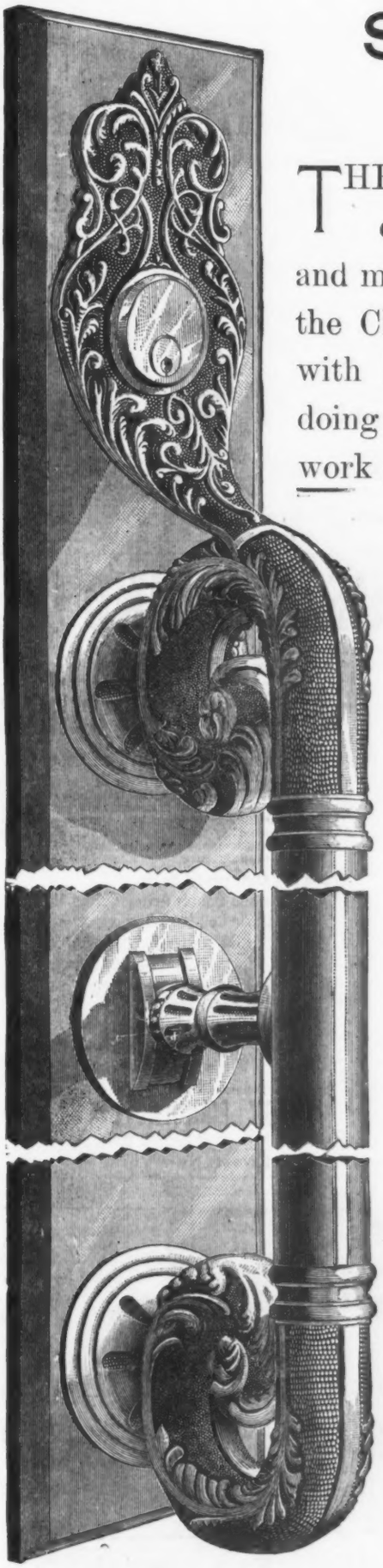

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Fig. 120.

Fig. 70.

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Fig. 209.

Fig. 381.

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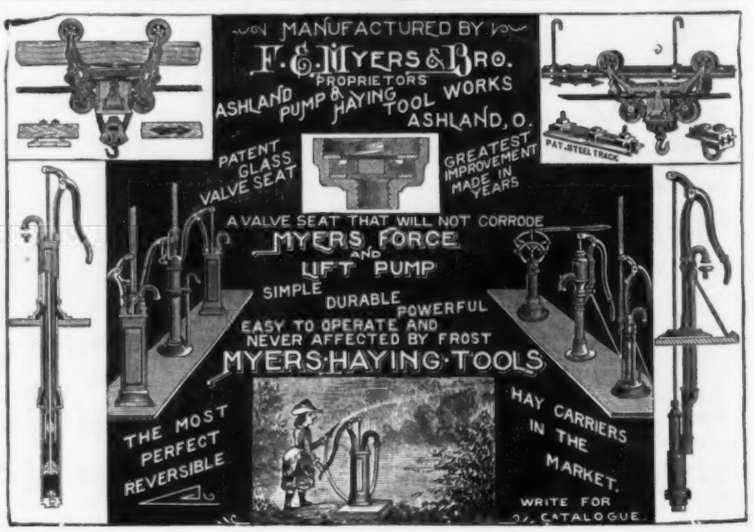

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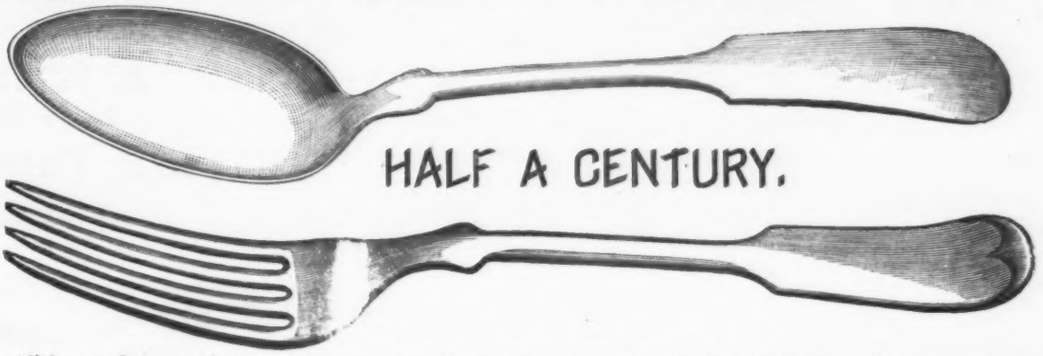

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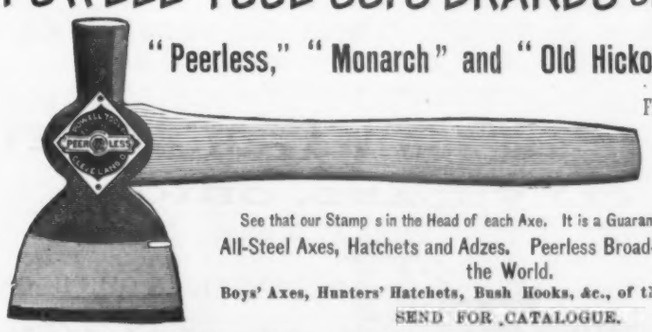

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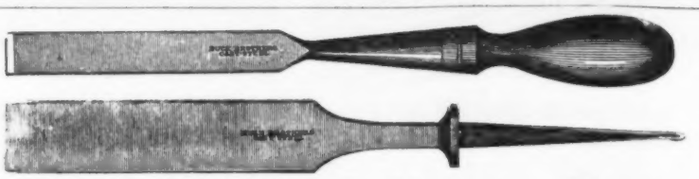

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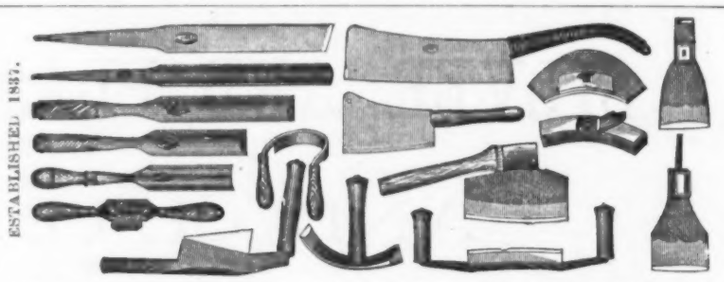

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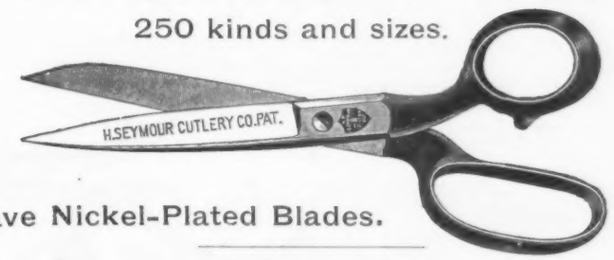

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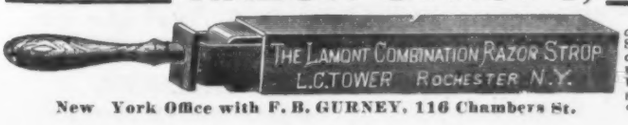

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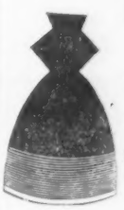

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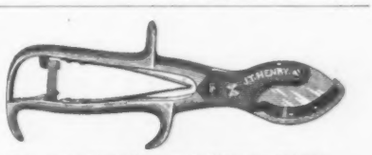

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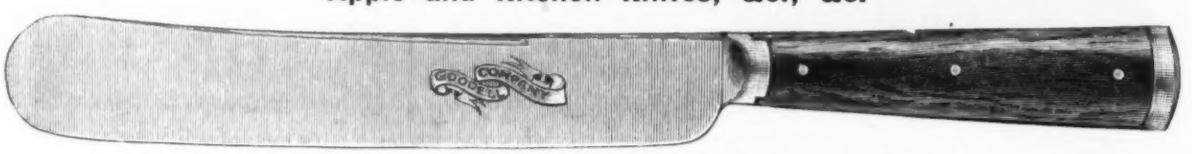

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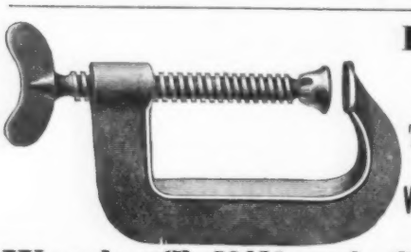

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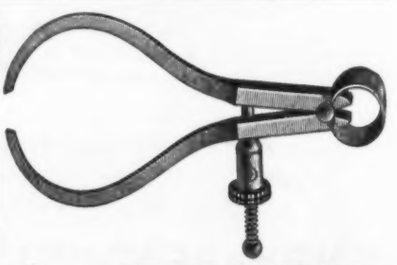

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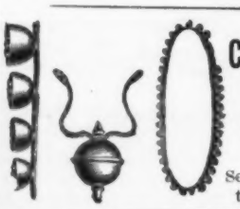

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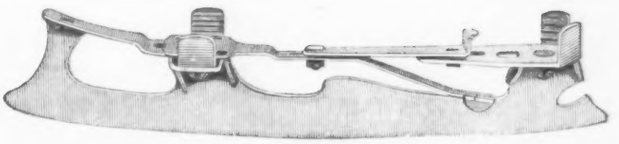

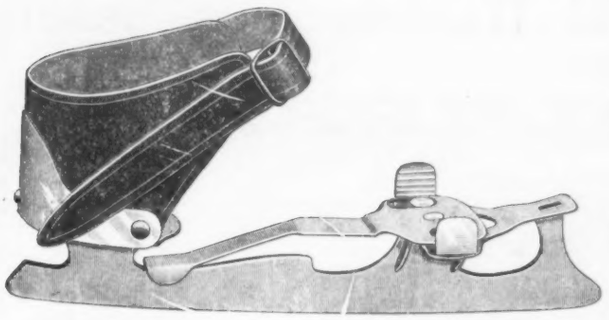

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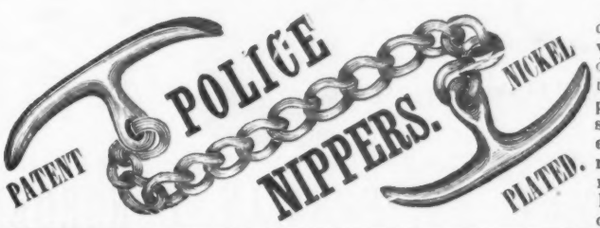

The attention of the Hardware Trade is called to the decision rendered in my favor in U. S. Circuit Court, So. Dist. of N. Y., Baldwin *vs* J. G. Conway Co., Limited, *et als*, wherein I prosecuted the defendants for selling Police Chain Twisters or Nippers, manufactured by Bean, of Boston, which are proved to be an infringement on my patent. We therefore warn the Trade and public generally against selling or using such Police Chain Nippers or Twisters, or any others, except those made by Jos. Baldwin & Co., and the improved patterns made by us exclusively for Tower & Lyon, N. Y., who have always respected our claims, and by whom our Police Chain Twisters are kept for sale. All such are stamped with our name or initials. All others are infringements. **JOS. BALDWIN & CO., Newark, N.J.**

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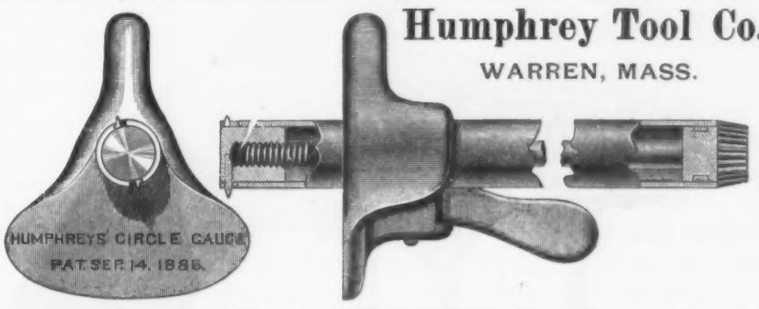

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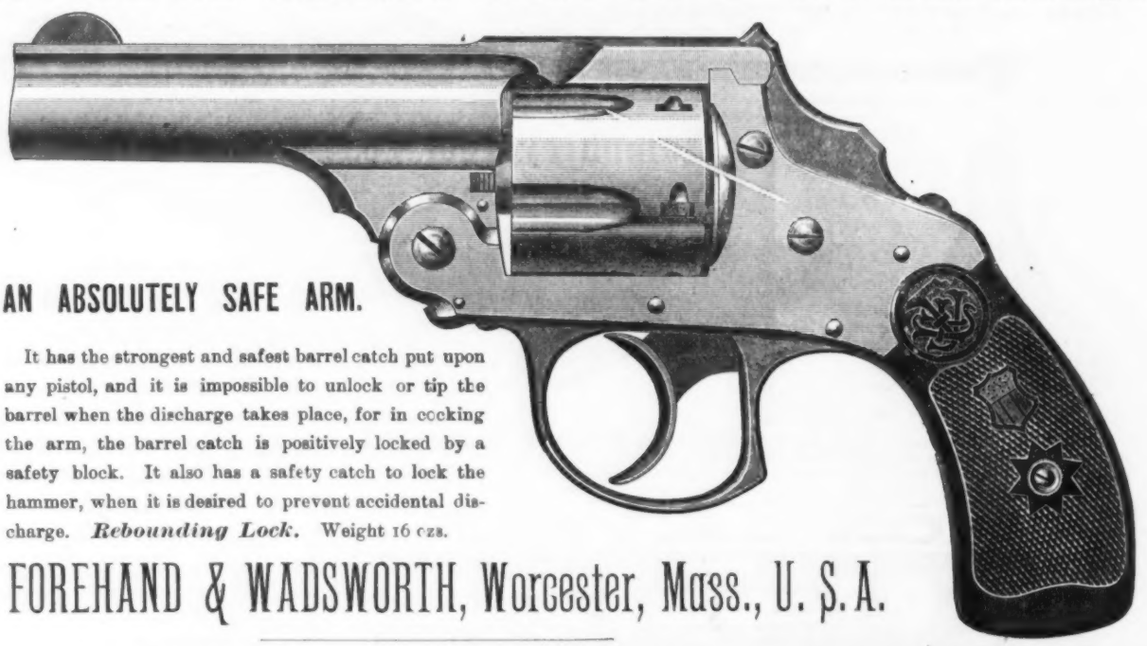

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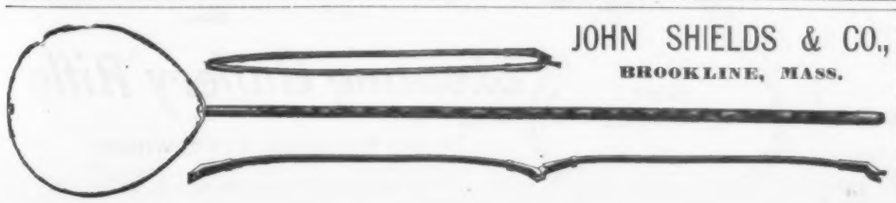

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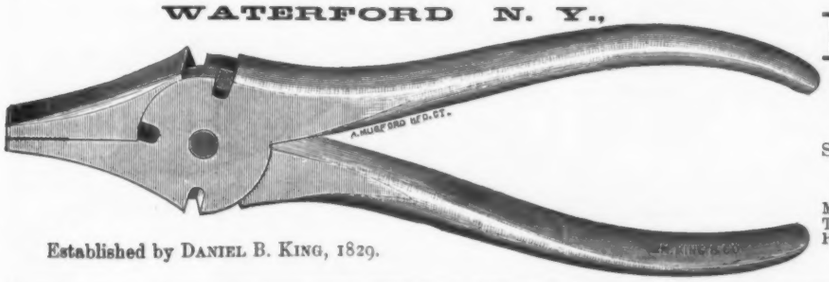

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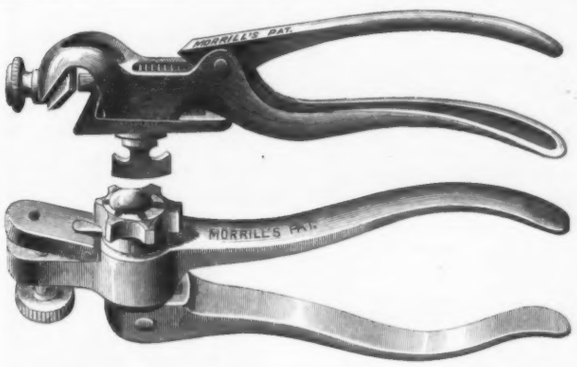

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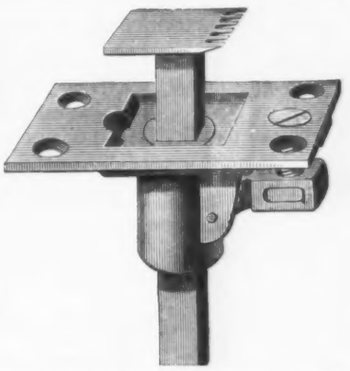

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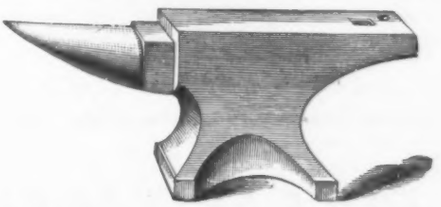

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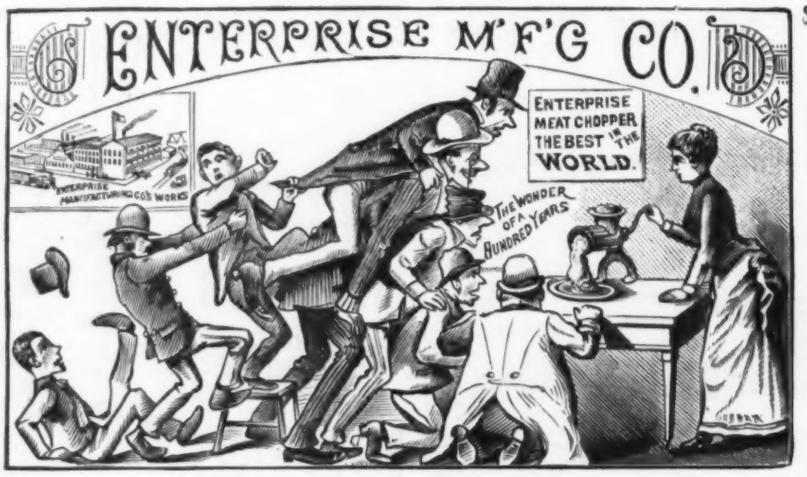

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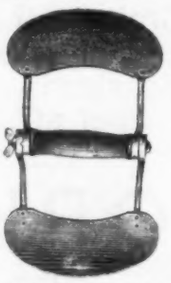

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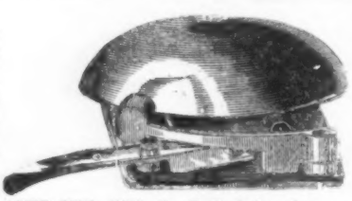

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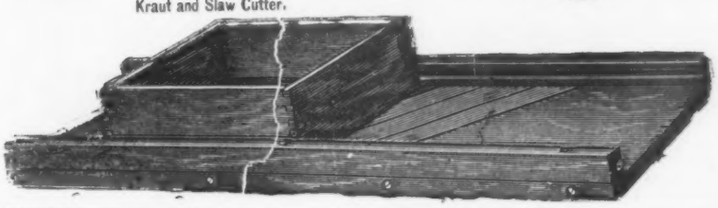

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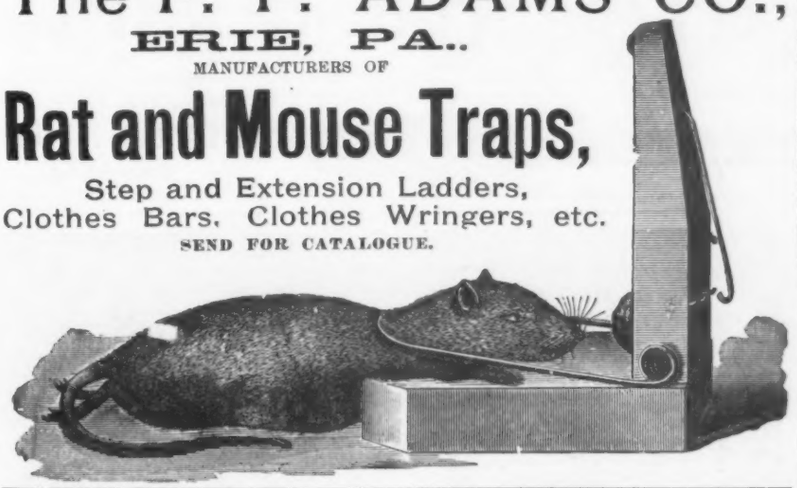

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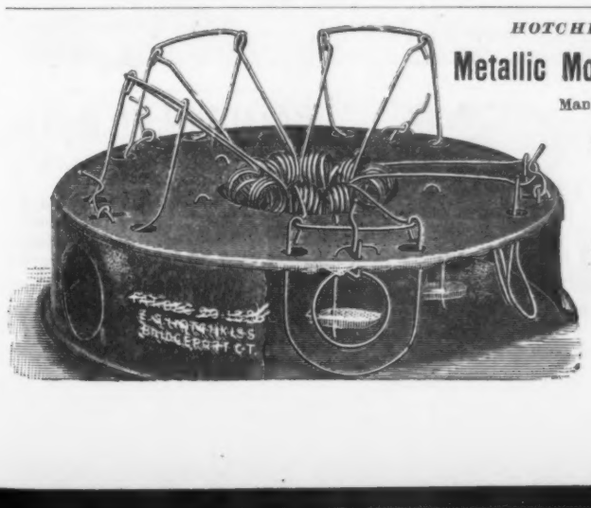

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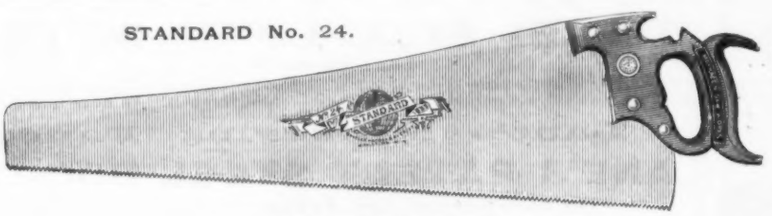

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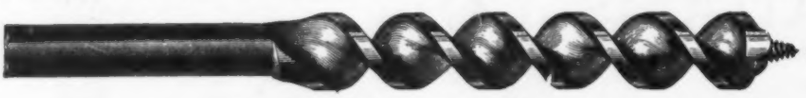

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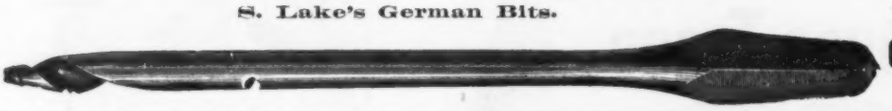

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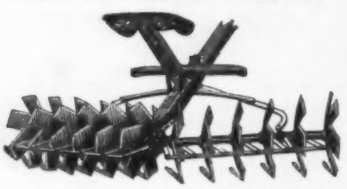

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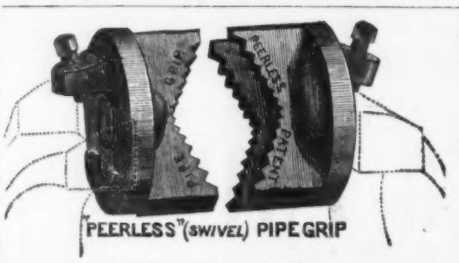

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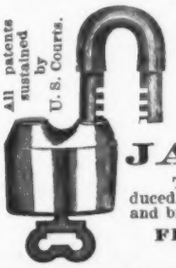

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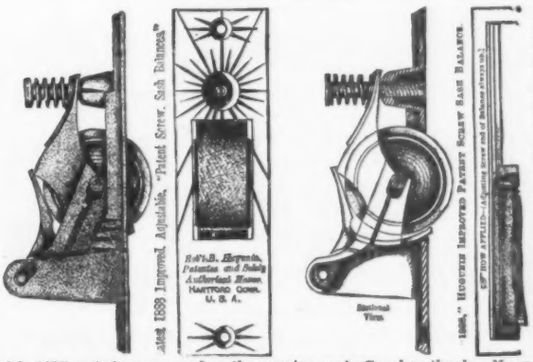
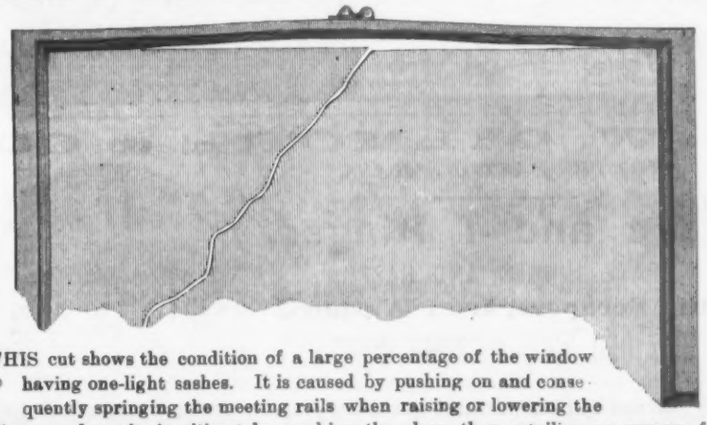


Reliable, inexpensive, mechanical substitutes for Weights. Easily applied and repaired by any one, ensuring permanence. No attachment to the sash or ribbons used to kink and break or clock springs to rust out and set and throw away. *They are applied to the frame* and work against the unpainted edges of the sash. Prevent rattling and allow the sash to be easily removed for cleaning &c. Prices, small 5/8x1 1/4, 60c. per set of 4; Medium, 1 1/16x1 1/4, 70c. per set of 4; Large, 1 1/2x1 5/8, 90c. per set of 4. Sample sets mailed on receipt of 80c. or $1.00, according to size. Cost applied, less than the additional cost of boxed over the plain frame. Just what is wanted for buildings having no facilities for weights. The latest improved being greatly strengthened, and benefited in their workings are warranted equal to weights for medium or lighter sash, under 20lbs each sash. Beware of a poorly made *fraud imitation of old screw balance*, using the date Nov. 6th, 1877, *a date never used on the genuine*, and *offered on the sly*. Many who have been swindled are replacing with the *genuine*, which have "*Robt. B. Hugunin. Patentee and Solely Authorized Maker*," cast upon them, and by which the *genuine* are instantly known. Spot the *fraud and those who offer you them*, and save future trouble *from infringement*. Get the "1888 *Improved Hugunin Patent Screw Balances*" the only reliable positive power outside of weights for balancing the weight of sash. If not kept by your dealer, order yourself direct from **ROB'T B. HUGUNIN W. F. MFG. CO., Hartford, Conn.**



THIS cut shows the condition of a large percentage of the window having one-light sashes. It is caused by pushing on and consequently springing the meeting rails when raising or lowering the windows, and results in ultimately cracking the glass, thus entailing an expense for repairs greater than the cost of applying Wigger's Patent Sash Lifters. These Sash Lifters obviate this trouble and also prove a great convenience in operating this class of windows, as previously described in the columns of *The Iron Age*.

The steadily increasing demand for these goods proves their utility, and also that both Architects and their Clients appreciate their merits, and that many Architects have specified them on buildings to be completed this fall. We shall be pleased, therefore, to send samples, sample cards and circulars (with blank space for dealers' name), on application, as the goods will be supplied exclusively through the Builders' Hardware Trade.

WRITE FOR PRICE LISTS, &c.

BRAINERD & CO.,

MANUFACTURING AGENTS,

97 Chambers St., New York.

ELIZABETHPORT STEAM CORDAGE CO.,

Manufacturers of the Standard

TRADE MARK E

BINDER TWINE

TRADE MARK E

Also CORDAGE of all Kinds

46 South Street, NEW YORK.

IVES' PATENT. SASH LOCK.

MANUFACTURED ONLY BY

BELL TIP, ORNAMENTAL.

H. B. Ives & Co. NEW HAVEN, CONN.

Security Sash Lock

Patented Nov. 9,'86.

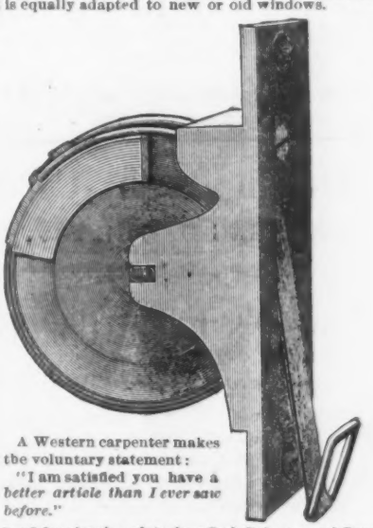
Anti- Rattler.

The Claflen Mfg. Co.,

Cleveland, Ohio, S. A., Sole Manufacturers.

The Andrus Sash Balance

The only perfected balance for sash that can be regulated with a brake to carry sashes of various lengths and weights. It is no more expensive than weights and cords and much less for heavy windows. It is equally adapted to new or old windows.



A Western carpenter makes the voluntary statement:

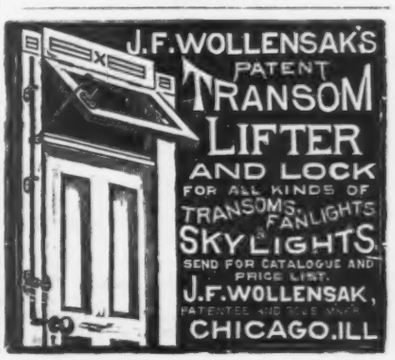
"I am satisfied you have a *better article than I ever saw before.*"

Send for circular of Andrus Sash Balance and Rose Ventilating and Sash Locks, &c.

WM. H. CALDWELL,

Successor to ANDRUS MFG. CO.,

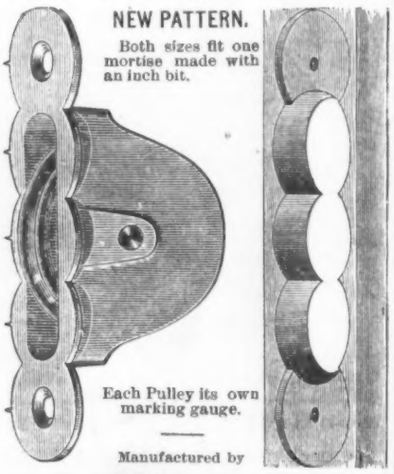
Rochester, N. Y.



Palmer's Common Sense Frame Pulley.

NEW PATTERN.

Both sizes fit one mortise made with an inch bit.



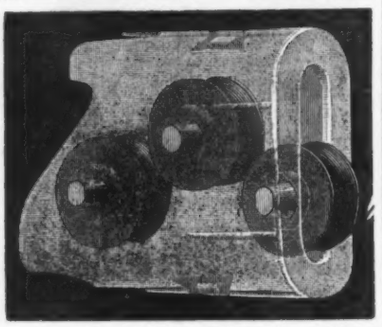
Each Pulley its own marking gauge.

Manufactured by

PALMER HARDWARE MFG. CO., Troy, N. Y.

Sole Eastern Agts., Peabody & Parks, Troy, N. Y.

IDEAL SASH PULLEYS.



From two to six of the Ideal can be applied to one of any other make on the market. A great saving of time and money to contractors and carpenters. Marking Gauges furnished with each lot of pulleys. Send for circular and price,

STOVER MFG. CO,

Freeport, Ill.

Broken Sash Cords

—A THING OF THE PAST—

When your windows are hung with

Morton's Cable Chains.

Guaranteed for 10 Years.

Some are now in use 15 years and are as good to day as when put in.

Can be applied wherever cord is used, and without any alteration of pulleys or sashes.

For further particulars address

"THOMAS MORTON,"

65 Elizabeth St., New York.

THE "AUTOMATIC" BLIND AWNING FIXTURE.

They ventilate and cool the room, giving free circulation of air and refreshing shade, and do not interfere with the ordinary use of the blinds.

Attachable to Old or New Blinds.

Sold by all the Hardware Trade.

F. O. NORTH & CO., Manufacturers, 276 Devonshire St., Boston, Mass.

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MARKLEY, ALLING & CO., Chicago, Ill.

THE BOSTON KNOB CO.,

MANUFACTURERS OF FINE DOOR KNOBS,

No. 169 HIGH STREET,

GEO. F. WHITING, (FORT HILL SQUARE.)

President and Manager.

THE peculiar qualities of the Knobs made by the Boston Knob Company are, their great *strength, beauty* and *durability.*

Unlike all others, they improve in appearance, while bronze, brass or wooden knobs commence to depreciate as soon as used. The Knobs manufactured by this Company do not require cleaning or polishing.

They are furnished in a variety of colors to harmonize with the finish or decoration of rooms.

They are warranted to wear as long as any knob made. This Company use the *New Boston Spindle.*

Send to the office of the Company for prices, or to any leading wholesale hardware dealer.

HALF SIZE.

Pat. Nov. 15, '87.

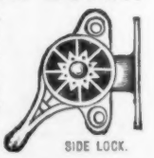
THE CHAMPION SAFETY SASH LOCKS.

These locks are being received with universal and enthusiastic approval by Architects, Builders, and Hardware Dealers everywhere. All bear testimony to their unequalled merits.

Hardware salesmen handling specialties will find this a valuable side line. Address the sole manufacturers,

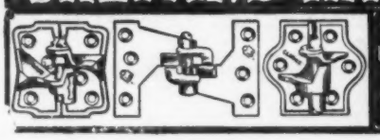
THE CHAMPION SAFETY LOCK CO.,

21 & 23 Champlain St., CLEVELAND, O



SIDE LOCK.

SHEPARD HARDWARE CO.



HEADQUARTERS FOR BLIND HINGES, SHUTTER HINGES, GATE HINGES, ICE CREAM FREEZERS, FRUIT PRESSES &c.

MAMMOTH FOUNDRY BUFFALO, N.Y.

E. W. GILMORE & CO.,

NORTH EASTON, MASS.

Strap and T Hinges,

CRATE HINGES AND HASPS,

Ship Scrapers, Iron Washers.

BRAIDED WIRE PICTURE CORD,

Tinned, Gilt and Gold, put up in small round boxes of 25 yds. and 25 feet, warranted full length; cord pulled out through hole in center of box.

SEND FOR PRICES.

VARIETY IRON WORKS.

MAIN OFFICE AND FACTORY

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ALFRED C. REX & CO.

MANUFACTURERS OF

Hardware Specialties

AND

Novelties in Iron, Brass and Bronze.

Special attention paid to Electro-plating in all its branches.

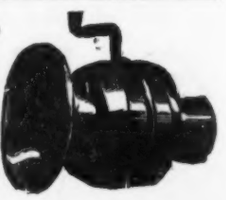
W. R. OSTRANDER & CO.,

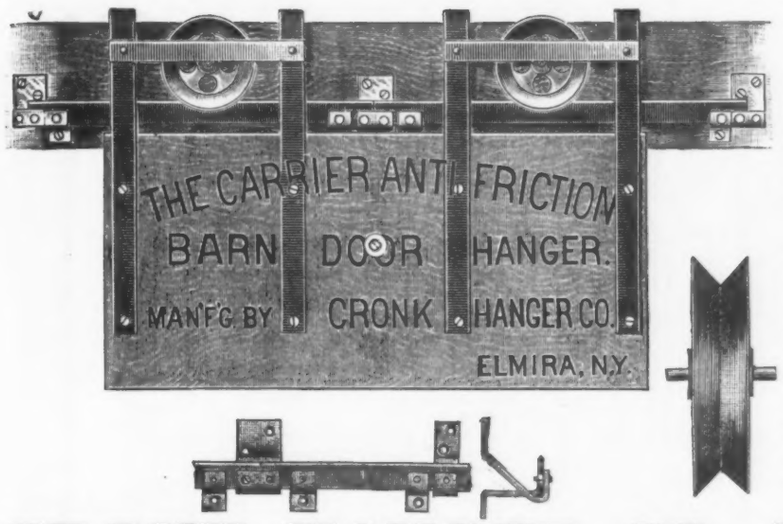
21, 23 & 25 ANN STREET, NEW YORK,

Manufacturers of

SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC MECHANICAL & PNEUMATIC ANNUNCIATORS & BELLS

Complete Outfits of Speaking Tubes, Whistles, Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn N. Y.





Carrier's Anti-Friction Steel Barn-Door Hanger.

This hanger is made entirely of Steel (with exception of wheels), which have Steel axles.

The wheels are V shape, thereby preventing any friction, for the reason that the side of the groove cannot touch the track and grind on the edges, as a straight groove would do.

IT CANNOT BE THROWN FROM THE TRACK.

If for any reason the door should be raised, the wheels remain on the track and ready to receive the door when falling back. No oil required—never screeches or grinds, and guaranteed to work easier than any Hanger on the market.

We call special attention to our Double Braced Steel Track (as shown in cut), and which has commended itself to all who have examined its merits, and must become the universal favorite. Can be put up with 1 in. No. 9 screws, each bracket (which are 15 inches apart) sustaining over 1000 lbs. weight, thereby carrying heavy doors with perfect ease.

WRITE FOR PRICES.

CRONK HANGER CO., Elmira, N. Y.

BOLLES, KIMBALL & WILDE, Boston, Mass., Agents for New England States.
J. C. McCARTY & CO., 97 Chambers St., New York, General Agents.

THE IRELAND MANUFACTURING COMPANY, Cincinnati, Ohio, Sole Manufacturers of

Reversible Rabbeted Mortise Door Locks,

THE MORRIS PAT-SASH LOCK. ALSO A GENERAL LINE OF BUILDERS' HARDWARE in all known finishes. Catalogues and lists furnished on application

ON THE ROAD TO RICHES

By WM. H. MAHER.

Practical Hints for Clerks and Young Business Men

On Buying and Selling Goods, Selling Goods on the Road, Business Correspondence, Drumming, and all Matters Pertaining to Business.

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A Step Higher.
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A Drummer's Experience—Continued.
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DAVID WILLIAMS, *PUBLISHER & BOOKSELLER,*

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Garden City Fire Engine-House Spring Hinge.

PAT. JUNE 23, 1885.

This Hinge throws the door open and is especially adapted to fire engine-house doors, as they are held shut and require the hinge to throw the doors open when released

	9 Japann'd Per Pair.	39 Bronze Pl Per Pair.	49 R'l Bronze Per Pair.	59 Brass Per Pair
St'l Doors.	$3.00	Prices on 39, 49 and 59 on applica'n		
Fr'nt "	5.00	Ex. Heavy Fr'nt Doors, Jap., $7.00		

Manufactured by CHICAGO SPRING BUTT CO., Lake and Union Sts., Chicago.

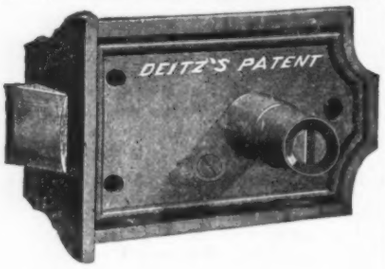
The Peabody Door Spring.

The only low-priced Scientific Door Spring made; exerts its greatest power at the latch. Equally desirable for Screen Doors, House Doors, or Store Doors.

Circulars and Price Lists on application.

A. W. PAINE, Peabody, Mass.

A. E. DEITZ.



No 109 LATCH.

J. C. McCARTY & CO., Agents,
97 Chambers and 81 Reade Sts.,
NEW YORK.

Factory, BROOKLYN, E. D., N. Y.

The Improved ANTI-SPLITTING
Empire Sash Pulley
FOUND AT LAST

THE BEST AND THE CHEAPEST.
Great Saving of Time and Material.

All with ½-inch Steel Axles. These pulleys can be fitted to the window frames at the rate of 60 per hour. No chisels used. No screws required. It is the most perfect and simple device ever made. Much better than ANY OTHER PULLEY in the world.

MANUFACTURED BY
EMPIRE PORTABLE FORGE CO.,
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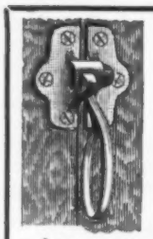
Manufacturers of the largest and best line of
Portable Forges and Hand Blowers.
FOR SALE EVERYWHERE.



P. J. CONROY & CO.,
1605 Catharine Street,
PHILADELPHIA,
Manufacturers of
The "CONROY"
REFRIGERATOR
DOOR FASTENERS,
HINGES AND OTHER
Refrigerator Trimmings

Pat. Dec. 15—88.

SHUT YOUR BLINDS

by using our "Worker," which opens or closes them without opening the window. They can be procured at any hardware store or by sending to DODD SHUTTER WORKER CO. No. 26 Church St., N. Y. Agents wanted.

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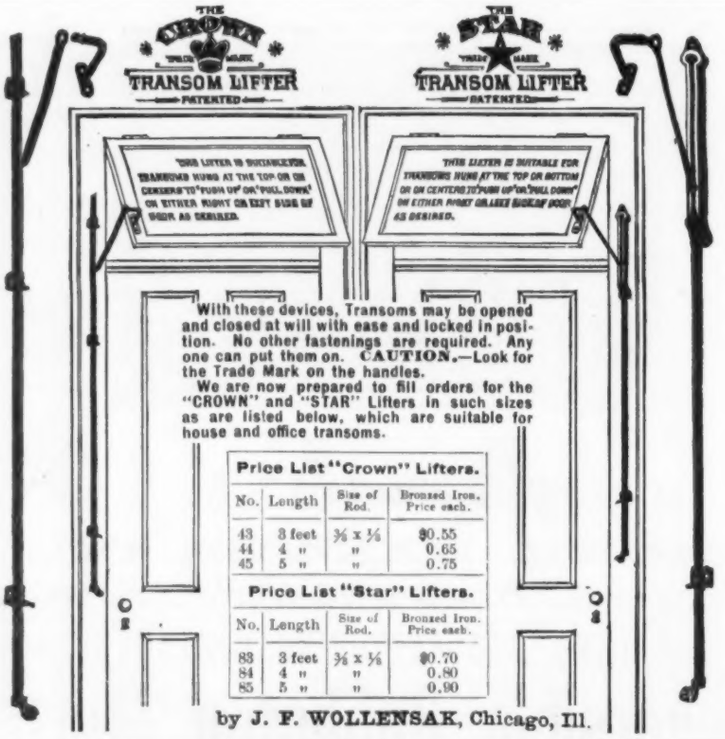
40 CHAMPION LOCKS.
See Iron Age, March 1st, page 87.
Send for Illustrated Catalogue No. 7, with discounts to the Hardware Trade.
Address **Miller Lock Co.**, Manuf'rs.
PHILADELPHIA.



With these devices, Transoms may be opened and closed at will with ease and locked in position. No other fastenings are required. Any one can put them on. **CAUTION.**—Look for the Trade Mark on the handles.

We are now prepared to fill orders for the "CROWN" and "STAR" Lifters in such sizes as are listed below, which are suitable for house and office transoms.

Price List "Crown" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
43	3 feet	⅜ x ⅛	$0.55
44	4 "	"	0.65
45	5 "	"	0.75

Price List "Star" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
83	3 feet	⅜ x ⅛	$0.70
84	4 "	"	0.80
85	5 "	"	0.90

by J. F. WOLLENSAK, Chicago, Ill.

BOSLEY'S FLEXIBLE RUBBER
WEATHER STRIPS.

Solid Rubber—Molded into Shape. All One Piece—No Stitching—No Cementing.
—PATENT APPLIED FOR.—

No. 8, Size ⅜ in.
Price per foot, 5c.
No. 9, Size ½ in.
Price per foot, 6c.

No. 10, Size ¾ in.
Price per foot, 8c.
No. 11, Size 1 in.
Price per foot 10c.

These Flexible Weather Strips are put up in lengths of 50 feet, making a package about 6 or 8 inches wide—1000 feet making one foot square. Any one can apply them with tack, hammer and shears. We also manufacture the **Peerless Rubber Window Cleaners and Floor Scrubbers.** *Liberal Discounts to the Trade.*

D. W. BOSLEY & CO., Chicago, Ill.

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Manufacture nearly *ONE THOUSAND* styles, sizes and varieties of

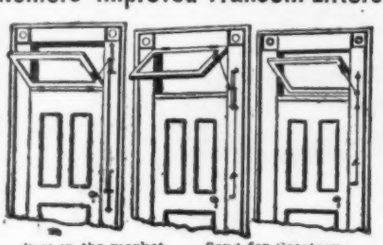
Extra Fine, Warranted Hand and Bench Tools,

for Watch, Clock, Piano and Cabinet Makers, Jewelers, Printers, Electrotypers, Dentists, Amateurs, Carpenters, Builders, Machinists and almost every kind of Mechanic or Artisan.

Send Business Card and 4 cents in Stamps for Illustrated Price List.

Bullock's Patent Combined Steel Blade Meat Chopper, Bone Saw and Steak Tenderer.
Just out! Sells at sight! Price per Dozen, net, $4.00. Write for price in gross and great gross lots.

Reihers' Improved Transom Lifters



Best in the market. Send for Catalogue.
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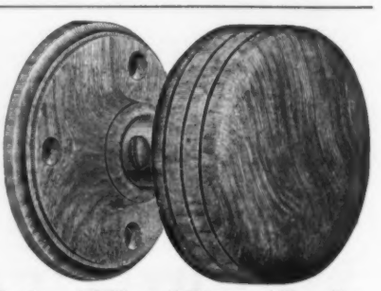
11 and 13 S. Canal St., - CHICAGO, ILL

The Queen Anne Screen Co., of Burlington, Vt., are manufacturing an
IMPROVED ADJUSTABLE WINDOW SCREEN,
with box panels. *The only one finished alike on both sides*, and both durable and cheap. Also a new frame for window screens and a new pattern of corners for both windows and doors, with sticks for frames.
Send for Circular and Price List.



Patent Wood Door Knobs,
Escutcheons, Door Stops, Shutter Knobs, Drawer Pulls and Patent
CHECKING SPRING HINGES
for double-acting doors.

J. BARDSLEY,
39 ELM ST., NEW YORK, and
YALE & TOWNE MFG. CO.,
NEW YORK, BOSTON, PHILA. and CHICAGO.

SCRANTON FORGING CO.

SUCCESSOR TO

J. B. SAVAGE SOUTHINGTON, CONN.

CARRIAGE HARDWARE

AND

SPECIAL FORGINGS,

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MANUFACTURERS OF

AXLES.

WAGON AND CARRIAGE.

AXLES.

STANDARD AND FINE GRADES.

CLEVELAND AXLE MFG. CO.,

CLEVELAND OHIO.

ILLINOIS IRON & BOLT CO.,

Nos. 20 to 26 Main Street,

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Blacksmiths' Tools,

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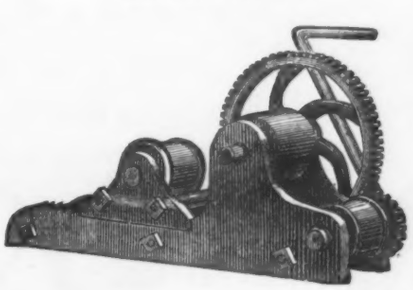


Thimble Skeins,

Tire Bender No. 2,

JACK SCREWS,

Track Jacks, Carriage Makers' Vises,

SAD IRONS, COPYING PRESSES AND STANDS, &c.

FROST'S ANTI-RATTLER

Cut One-half Size.

Sample pair will be sent free to hardware or saddlery firms by addressing

STILES FROST

Boston, Mass.

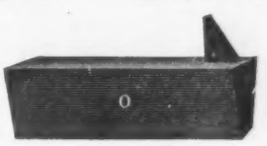
P. F. BURKE,

Successor to C. F. Dewick & Co.,

Manufacturer of

PATENT STEEL

Toe Calks,



360 Dorchester Avenue, Boston, Mass.

Carriage Hardware

LARGEST LINE OF

WROUGHT CARRIAGE FORGINGS,

MADE BY ANY HOUSE

Send fo Catalogue and Discount Sheet.

The E. D. CLAPP MFG., Auburn, N. Y.

H. D. SMITH & CO.,

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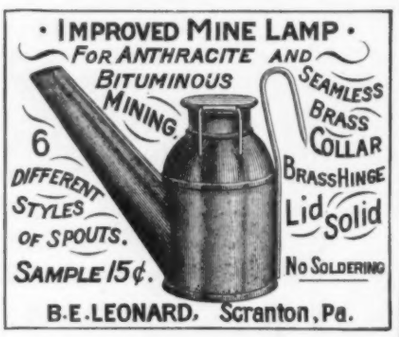
MANUFACTURERS OF THE BEST QUALITY

CARRIAGE MAKERS' HARDWARE

MANUFACTURE THE LARGEST VARIETY OF

FORGED CARRIAGE IRONS

Of Best Material and Workmanship.



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MANUFACTURED IS THE CELEBRATED WORKS OF THE

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For sale by all jobbers handling this class of goods.

CLIFF'S R. H. WAGON SPRINGS.

TITUS & BABCOCK,

ROCHESTER N. Y.

Manufacturers' Agents for

Cliff's R. H. Wagon Springs,

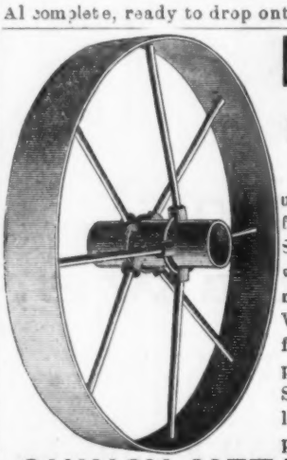
Cliff's 1887 " "

Ram's Horn Buggy Springs.

Best Wagon Spring on Earth.

Al complete, ready to drop onto bolster.

Send for Prices.



METAL WHEELS

FOR ALL PURPOSES.

Conceded the best, and used by the leading manufacturers in the United States. The only Wheel in which the spokes are connected to other parts of the Wheel with enlarged tenons, formed in place by heavy pressure and while cold. Send for descriptive catalogue, and mention this paper.

QUINCY METAL WHEEL CO., Quincy, Ill.

BLACK DIAMOND FILE WORKS.

G. & H. BARNETT,

21 to 43 RICHMOND STREET, - - - PHILADELPHIA.

Paris, 1878. *For Superiority.*

McCAFFREY & BRO.,

PENNSYLVANIA FILE WORKS,

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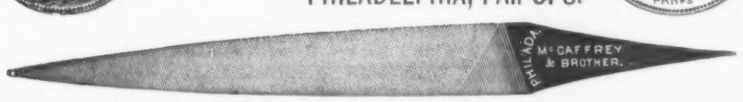

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Extract from the "Daily Register," the New York Law Journal, July 7, 1888.

ANDREWS, J.

Baeder et al. v. Baeder et al. (two cases)—After a careful examination of the voluminous papers submitted in these cases I am of the opinion that Baeder, Adamson & Co. branded their second quality of flint paper with the word "Baeders," for the express purpose, and with the effect of inducing the public to purchase such second quality of paper as and for the first quality of the flint paper of the plaintiffs, William A. Baeder and Howard R. Kern; and that the defendant, the Russell & Erwin Mfg. Co. have, knowingly and intentionally, actually sold such second quality paper of Baeder, Adamson & Co. as and for the first quality paper of said William A. Baeder and Howard R. Kern. These acts of Baeder, Adamson & Co., and of the Russell & Erwin Mfg. Co. are clearly unlawful, and the motion to continue until the trial of the action the injunction, heretofore granted by Mr. Justice Barrett, in the action brought against those parties by Baeder & Kern will be granted, with $10 costs. I do not think that the mark used by Baeder & Kern can be considered a simulation of Baeder, Adamson & Co.'s first quality mark, nor that it is intended or calculated to mislead or deceive purchasers into taking Baeder & Kern's Paper as and for the first quality paper of Baeder, Adamson & Co. The motion for an injunction, in the action brought by Baeder, Adamson & Co. ainst William A. Baeder & Kern will be denied, with $10 costs.

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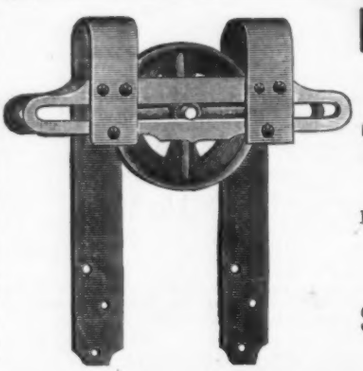

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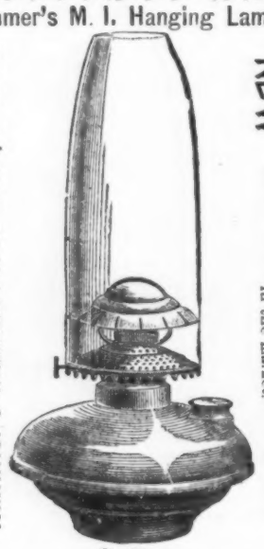

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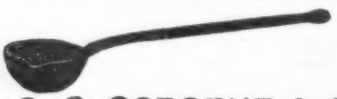

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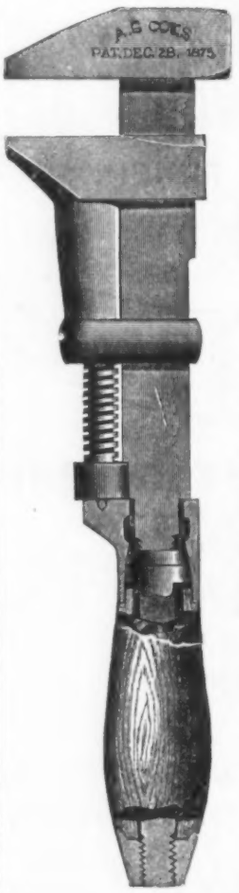

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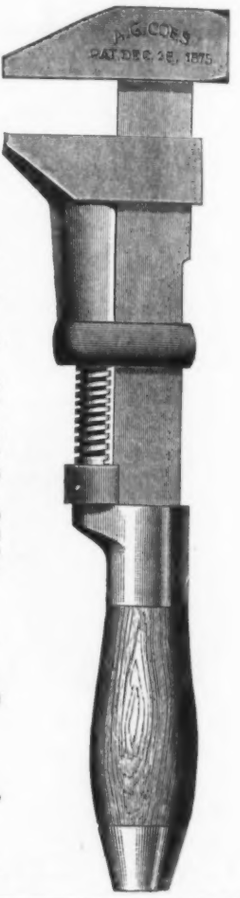

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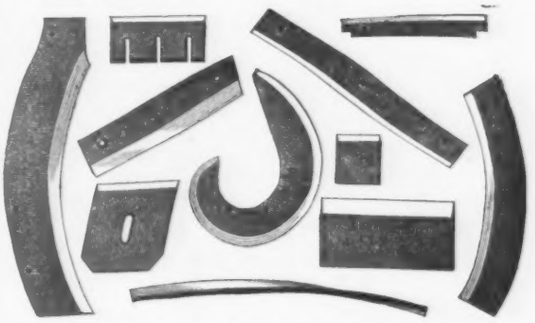

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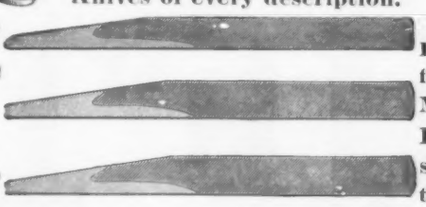

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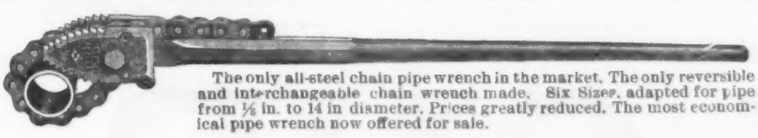

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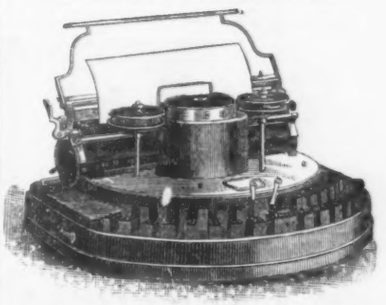

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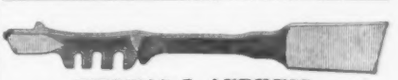

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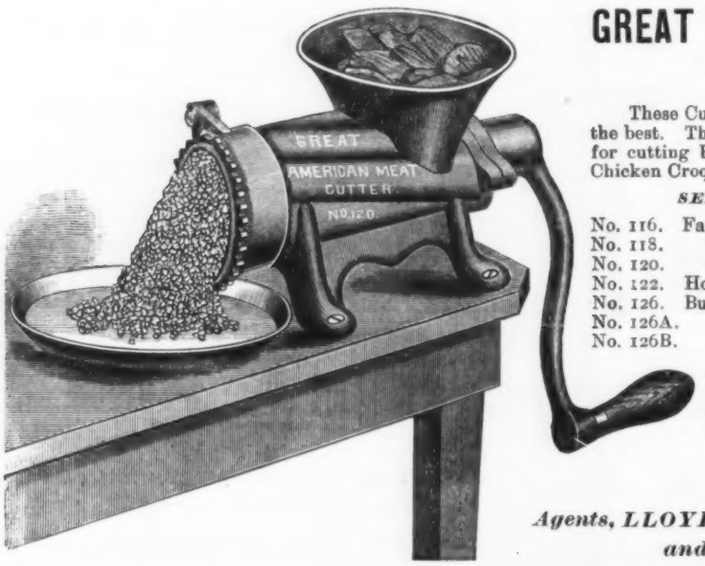

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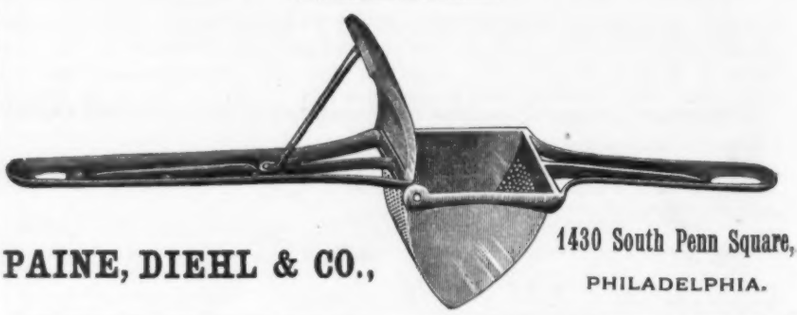

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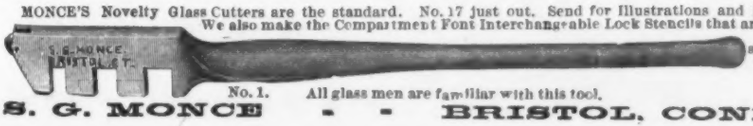

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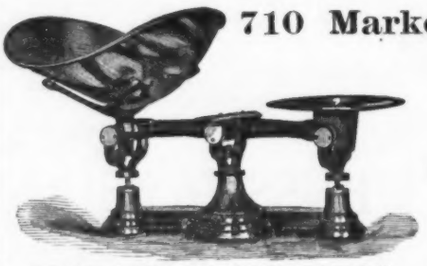

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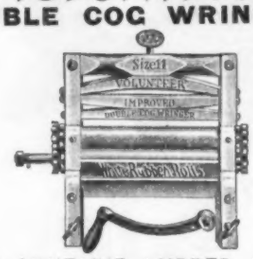

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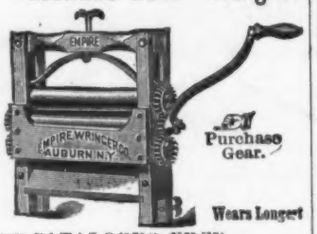

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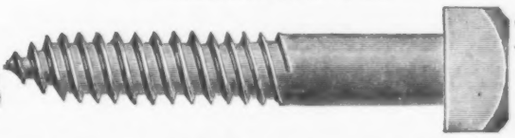

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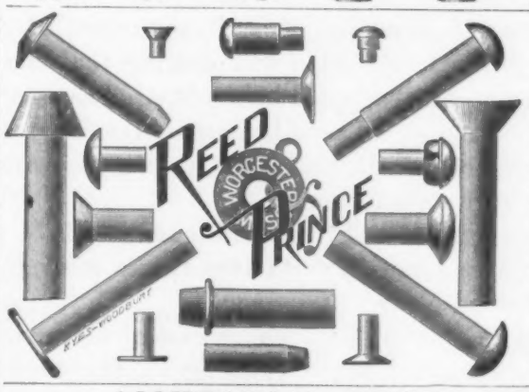

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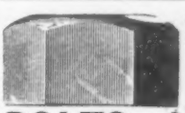

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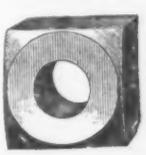

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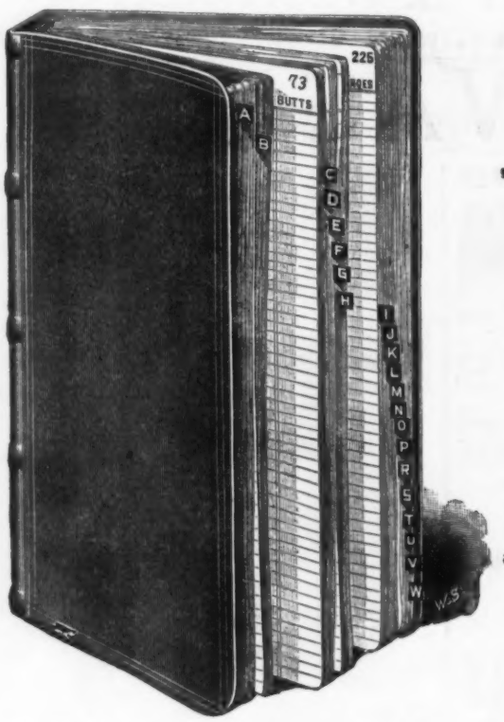

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Laughlin, A. & Co., Cleveland, O.
Lean & Blair, Pittsburgh, Pa
McClure & Shuler, Pittsburgh, Pa.
McKenna, Ryan & Sons, Pittsburgh.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh Pa.
Stein & Schwarz, Philadelphia, Pa.
Swindell Construction Co. Pittsburgh, Pa.
Waite & Van Harlingen, Phila. Pa.

Engines, Gas.
Clerk Gas Engine Co., Phila., Pa.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Climax Mfg. Co., Corry, Pa.
Farquhar, A. B. & Son, York, Pa.
Harrisburg Car Mfg. Co., Harrisburg Pa.
Leffel Jas. & Co., Springfield, O.
Newell Universal Mill Co., 10 Barclay N. Y.
Payne B. W. & Sons, 49 Dey, N. Y
Russell & Co., Massillon, Ohio
N. Y. Safety Steam Power Co., 30 Cortlandt St., N. Y.
Norwalk Iron Works Co., S. Norwalk
Todd Wm. & Co., Youngstown, O.
Wetherill Robt. & Co., Chester, Pa.

Engravers and Printers.
Kyes & Woodbury, Worcester, Mass.

Exhaust Fans.
Clark, Geo. P., Windsor Locks, Conn.

Exhaust Pipe Condensing Head.
Aller, Amos, 109 Liberty, N. Y.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn, N. Y.

Faucets, Self-Measuring.
Enterprise Mfg. Co., Philada., Pa.

Faucets, *Makers of.*
John Sommer's Son, Newark, N. J.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn

Fences, Wrought Iron.
Champion Iron Fence Co., Kenton, O.

Files, *Importers of.*
Montgomery & Co., 105 Fulton, N. Y.
Moss, F. W. 80 John, N. Y.

Files and Rasps, *Manufacturers of.*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart James M. Scranton, Pa.
Jetter Mfg. Co., Buffalo, N. Y.
McCaffrey & Bro., Philadelphia
Nicholson File Co., Providence, R. I.
Paul Chas. B., Williamsburg, N. Y.

Fire Brick, *Makers of.*
Birmingham Fire Brick Works, Birmingham, Ala.
Borgner & O'Brien, Philadelphia, Pa
Gardner James, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer H. & Son, 420 E. 23d, N. Y.
Newton & Co., Albany, N. Y.
Ostrander James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine M. D. & Bro., Woodbridge.

(See Alphabetical Index, Page 86.)

Fish Hooks.
Alford & Berkele Co , 77 Chambers St., N. Y.

Fishing Tackle.
Shields, John & Co., Brookline, Mass.

Flint Paper.
Baeder Flint Paper Co., 283 Pearl, N Y

Flour Sifters.
Fred. J. Meyers Mfg. Co., Covington, Ky.

Foreign Iron Merchants.
Jno G. Rollins, London England.

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y.
Bullock, T. H., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co. Lancaster, Pa.
Sturtevant B. F., Boston, Mass.

Forgings, Iron and Steel.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Miller Forge Co., Pittsburgh, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg Co., Cincinnati, O.

Foundry Riddles.
Estey W. S., 71 Fulton, N. Y.

Foundry Supplies.
Detroit Foundry Equipment Co., Detroit Mich.
S. Obermayer, Foundry Supply Mfg Co., Cincinnati, O.
Paxson J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.

Friction Pulleys.
Sandy Hill Iron and Brass Works, Sandy Hill, N. Y.

Furnace Hoists.
Stokes & Parrish Machine Co., Phila.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila, Pa.

Gears.
Grant, Geo. B., Boston, Mass.

Gear Cutters.
Grant, Geo. B., Boston, Mass.
D. E. Whiton Mach. Co., New London Conn

Glass Cutters.
Andress, Thos. J., Philadelphia, Pa.
Monce, S. G., Bristol Conn.

Glue.
Le Page Liquid Glue and Cement Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.
Upton, Geo., Boston, Mass

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hammers, Steam.
Bradley & Co., Syracuse, N. Y.

Hand Force Pumps.
Union Mfg. Co., 103 Chambers, N. Y.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field Alfred & Co., N. Y.
Jacobus, W. H. & Co., N. Y.

Hardware Manufacturers.
Brand Mfg. Co., New Britain, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Vaughan & Bushnell Mfg. Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H., 115 Chambers, N. Y.

Hardware Shelf Boxes.
Green S. H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.
Sharp H. H. & Co., Philadelphia, Pa.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit Brace Co., Buffalo, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Greene, Tweed & Co., N. Y.
Paine, Diehl & Co., Philadelphia, Pa.
Rex A. C. & Co., Philadelphia, Pa
Saxton E. R., Buffalo, N. Y.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Carriers.
Myers F. E. & Bro., Ashland, O.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hinges.
Union Mfg. Co., 103 Chambers, N. Y.

Hog Ringers.
Chambers, Bering & Quinlan Co., Decatur

Hoisting Machines.
Box Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty St., N. Y.
Energy Mfg. Co., Philadelphia, Pa.
Harrington E. Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
McCoy & Sanders, 26 Warren, N. Y.
Morse, Williams & Co., Phila.
Sellers Wm. & Co., Phila. and N. Y.
Teal Hoist Co., Philadelphia.

Horse Nails, *Makers of.*
National Horse Nail Co. Vergennes.

Horse Shoes, *Makers of*
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa.

Hydrants, &c.
McLean John, N. Y.

Hydraulic Jacks.
Dudgeon Richard, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.

Indurated Fibre Ware
Union Indurated Fibre Co., N. Y

Injectors.
Aller, Amos, 109 Liberty, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox Justice, Jr., & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Hoffman J. W. & Co., Philadelphia.
Lewis Henry & Co. Philadelphia.
Williams, N. B., Chicago, Ill.

Iron, *Manufacturers of.*
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, O.
Montour Iron & Steel Co., Danville.
Moorhead-McCleane Co., Pittsburgh, Pa
Passaic Rolling Mill Co., Paterson
Phoenix Iron Co., 410 Walnut, Phila.
Pottstown Iron Co., Pottstown, Pa.
Stuart & McLean, Pittsburgh, Pa.
Troy Steel and Iron Co., Troy, N. Y.
Whitney A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co. Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philp C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Etting Edward J., Philadelphia, Pa.
Walbaum W. H. & Co., Philadelphia Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia
Horan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia.
Mohr J. J., 430 Walnut, Phila.
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila., Pa.
Hart, Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co., Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 100 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig, *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet, *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O.

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Mast, Foos & Co., Springfield, O

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. F., Athol, Mass.
Tower & Lyon, 95 Chambers St. N. Y.

Locks and Knobs, *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Ireland Mfg. Co., Cincinnati, O.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co., Bridgeport.
Quackenbush, Abram, New York
Yale & Towne Mfg. Co., Stamford

Machinery.
Adt John & Son, New Haven, Conn.
Barnes W. F. & John, Rockford, Ill
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Bullard, E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray's Ferry F'd'y & Boiler Co., Phila. Pa.
Harrington, E. Son & Co., Phila., Pa.
Hendey Machine Co., Torrington, Ct.
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge, Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pryibil P., 467 W. 40th, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers Wm. & Co., Phila.
Snell, Henry L., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. Fd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co. Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. S. Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Meat Choppers.
Enterprise Mfg Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N. Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mincing Knives.
Shepard, Sidney & Co., Buffalo, N. Y.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Thomas, Dago J., 1 Broadway, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co., Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Wash'ton N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Zucker & Levett Chemical Co., 557 to 564 West 16th, N. Y.

Norway Shapes, *Rollers of.*
Naylor & Co., 99, John, N. Y.
Rowland William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester.
Shelton & Co., Birmingham, Conn.
Wilson J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn.

Oil Stones.
A. F. Pike Mfg. Co., PikeStation, N. H
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardner, Mass.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt Carmel, Conn.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-Spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Fraim, E. T., Lancaster, Pa.

Pails.
Brower, John, New York.

Paint.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton
Stocking E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Picture Cord.
Gilmore, E. W. & Co., No. Easton, Mass.

Pig Iron.
Chamberlain, Wheeler & Co., Columbus, Ohio.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, *Makers of.*
Donaldson Iron Co, Emaus, Pa.
Fox John, 160 Broadway, N. Y.
Morris, Tasker & Co., 234 South Third street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co. St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Police Equipments.
Baldwin, Jos. & Co., Newark, N. J.
French, S. A., 400 Broome St., N. Y.

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N Y

Post Hole Diggers.
Lagonda Mfg. Co., Springfield, O.

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Powder.
Laflin & Rand Powder Co., 29 Murray St., N. Y.

Power Hammers.
Belden H. A. & Co., New Haven, Conn.
Bradley & Co., Syracuse, N. Y.
Dienell & Eisenhardt, Philadelphia
Duncan, W. P. & Co., Bellafonte, Pa.
Long & Allstatter Co., Hamilton, O.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Long & Allstatter Co., Hamilton, O.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa.

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Presses, Power, *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn.

Pulleys.
Edinburg Pulley Co., Edinburg, Md.

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford, Conn.

(See Alphabetical Index, Page 86.)

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co ,Cleveland,O
Keystone Engine and Machine Wks Phila., Pa.
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Easthampton Mass.

Pumps, Force.
Myers F. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y

Pumps. *Makers of.*
Columbiana Pump & Machine Co.
Douglas W. & B., Middletown, Conn.
Goulds Mfg. Co., 60 Barclay, N. Y.
Silver & Deming Mfg.Co., Salem,O.
Union Mfg. Co., 103 Chambers, N. Y.

Punches.
Fulton Iron and Engine Works, Detroit, Mich.

Punching and Shearing Presses.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown, Pa.
Joliet Steel Co., 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y.
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Cowles Mfg. Co., Bridgeport, Ct.

Razors.
J. R. Torrey Razor Co., Worcester Mass.

Razor Strops.
Tower & Lamont, Rochester, N. Y.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia,

Refrigerator Trimmings.
Brainerd & Co., 97 Chambers St., N. Y.

Reloading Tools.
Ideal Mfg. Co., New Haven, Conn.

Rivets.
Disosway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rolling Mill Machinery.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co., Pittsburgh, Pa
Lloyd-Booth Co., Youngstown, Ohio.
Seaman, Sleeth & Black, Pittsburgh.

Roofing.
Garry Iron Roofing Co., Cleveland, O.

Rope Snaps.
Pratt & Letchworth, Buffalo, N. Y.

Rules, *Manufacturers of.*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Balances.
Caldwell, W. H., Rochester, N. Y.
R. B. Huguenin Mfg. Co., Hartford, Conn.

Sash Cords and Chains.
Morton Thos., 65 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Claflin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers St., New York.
Ives H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Cohoes, N. Y.
Palmer Hardware Mfg. Co , Troy, N. Y.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury, Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Morrill, Chas., 79 Chambers St., N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons, Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Riehlé Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Kilrich Hdw. Mfg. Co., Plantsville, Conn.
Tower & Lyon, 95 Chambers, N. Y

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S., 205 Quarry, Philadelphia.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls, N. Y
King, O'Connor & Co., Baltimore, Md.

Scythe Stones and Whetstones
A. F. Pike Mfg. Co., Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 27 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Schollhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y,

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown. Conn.

Skates.
Dame, Stoddard & Kendall, Boston, Mass.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen 105 Walker, N.Y.
Wollensak, J. F., Chicago, Ill.

Spelter.
Manning & Squier. 111 Liberty, N. Y.

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Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.

Spring Hinges.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Steps.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., *Makers of.*
Dieneit & Eisenhardt. Philadelphia.
Dudgeon Richard. 24 Columbia. N. Y.
Duncan W. P. & Co., Bellefonte Pa.

Steam Heating.
Broomell & Sanks, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colville Steam Pump Co., St. Louis, Mo
Hughes Steam Pump Co.,Cleveland, O.
McGowan John H. & Co., Cincinnati.
Norwalk Iron Wks.Co., So. Norwalk.

Steam Traps.
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Steel Figures and Alphabets.
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Steel Importers.
Abbott Jere & Co., N.Y. & Boston.
Hobson Francis & Son. 97John, N. Y.
Jessop Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West, N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones B. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N.Y.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John. N. Y.
Jones, B. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller, Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss F. W., 83 John, N. Y.
Naylor & Co., 99 John, N. Y.
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Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm. & Harvey, Frankford Philadelphia.
Singer, Limick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N.Y.
Wardlow S. & C., Sheffield, Eng
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beavor-Webb, J., 145 Broadway.
Hicks & Dickey, Philadelphia, Pa.

Steel Nails
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs, *Manufacturers.*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N.Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng. 91 John, N. Y.
Leng John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops
J. R. Torrey & Co., Worcester, Mass.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Truman, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
American Tool Co., West Houston St., N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W., Springfield, Mass.
Ehrich Hdw. Mt. Co., Plantsville, Ct.
Hoague, J. H & Co., Chicopee, Mass.
Humphrey Tool Co., Warren, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Transom Lifters.
Reiher F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Riehle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co., 19 Murray, N. Y.

Tubes, Steel.
Leng John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Type Writers.
Hammond Type Writer Co., 75-77 Nassau, N. Y.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Leng John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 23 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers.
Lanman, E. B., Columbus, O.
Mason Iron Co., Philadelphia, Pa.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York.

Weather Strips.
Bosley, D. W. & Co., Chicago.

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

Wheelbarrows.
Pugsley & Chapman, 8 Liberty, N. Y

Wheels.
Quincy Metal Wheel Co., Quincy, Ills.
L. A. Weston & Co., Syracuse, N. Y

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.

Window Screens.
Darby, Edw. & Sons, Philada., Pa.
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren St., N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd, Pittsburgh, Pa
Howard & Morse, 45 Fulton, N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co., Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass.
Darby Edward & Sons, Philadelphia
Estey W. S., 71 Fulton, N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse, 45 Fulton, N. Y.

Wire Goods, *Manufacturers of*
Brooks M. S & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville
Howard & Morse, 45 Fulton, N. Y.
Knapp Bros., New York.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
Adt John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Sweetser, W. A., Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Birmingham Wire Nail Co., Birmingham Ct
Cambria Iron & Steel Co., Chicago, Ills.
Dunbar, Hobart & Co., 39 Warren, N. Y
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Hartman Steel Co. Ltd., Pittsburgh Pa.
Phillips E. & Sons, South Hanover
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Pittsburgh Wire Nail Co., Pittsburgh, Pa.
Plymouth Mills, Plymouth, Mass.
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Wire Goods Co., Worcester.
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Whitney A. R. & Co., New York City.

Wire Rods, Steel.
Whitney A. R. & Co., N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis, Mo.
Upson, Walton & Co., Cleveland, O.
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Fall N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co Springfield, Mass.
Billings, Spencer & Co., Hartford Conn.
Coes Wrench Co , Worcester, Mass.
Utility Wrench Co , N. Y.
Williams, J. H., Brooklyn, N. Y.

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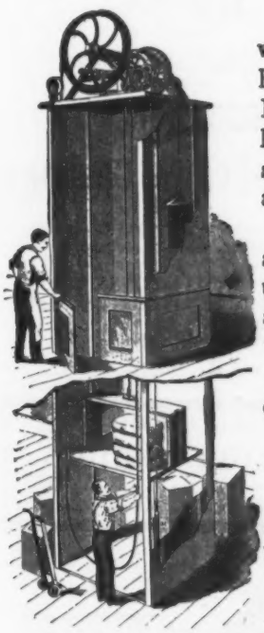

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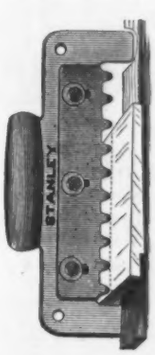

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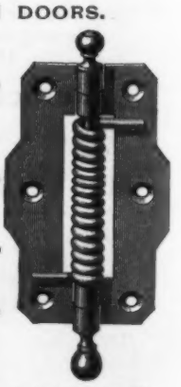

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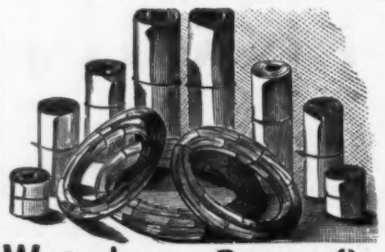

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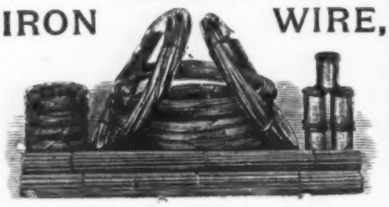

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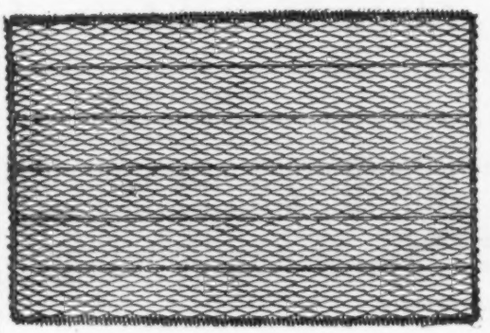

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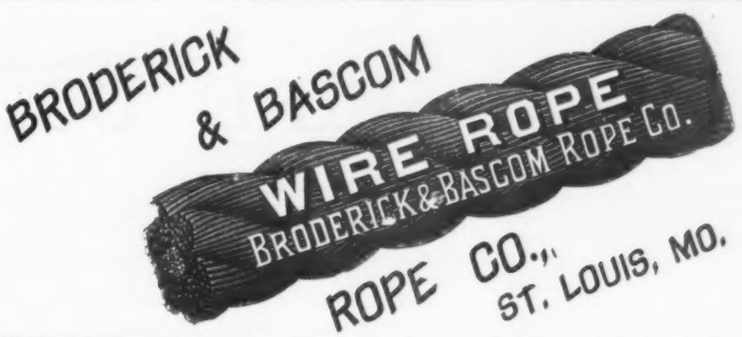

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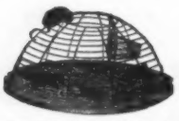

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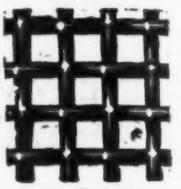

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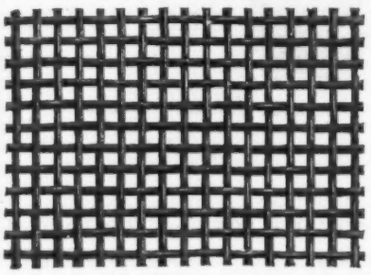

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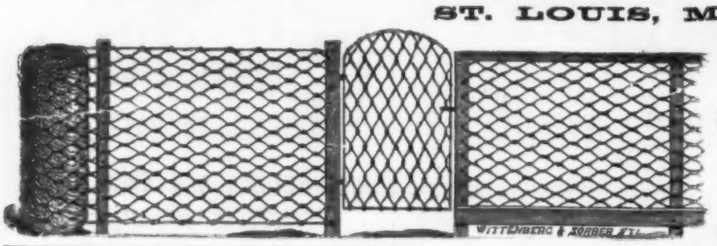

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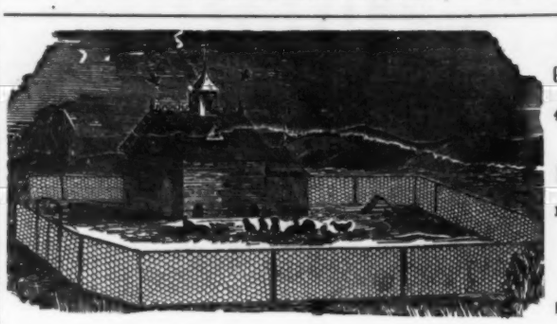

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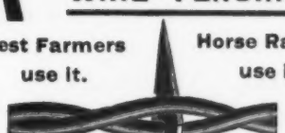

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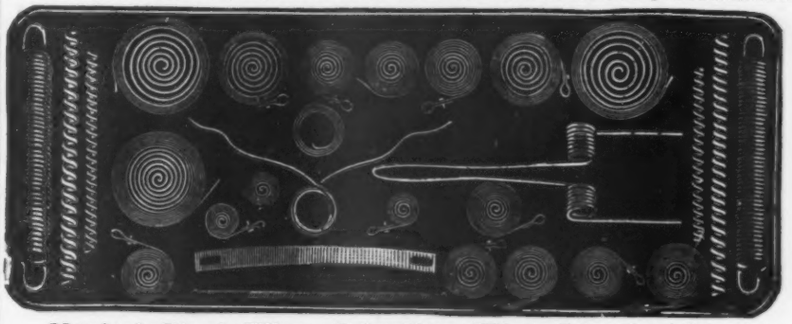

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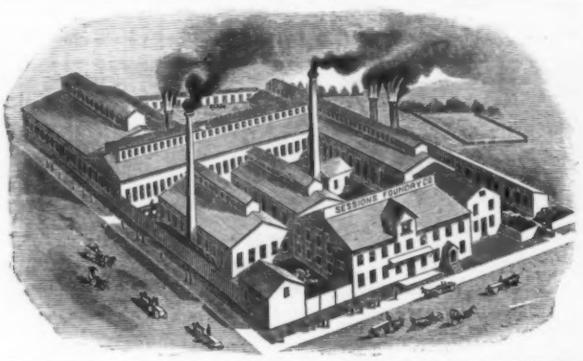

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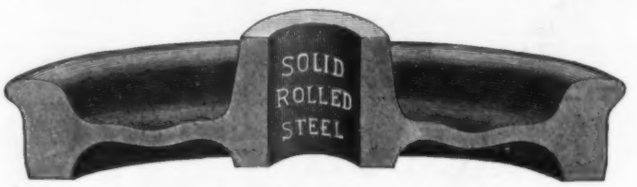

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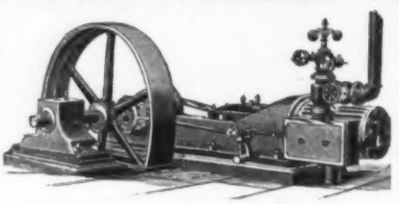

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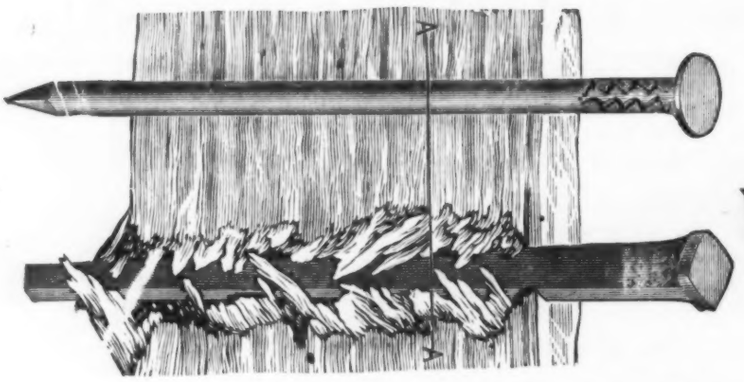

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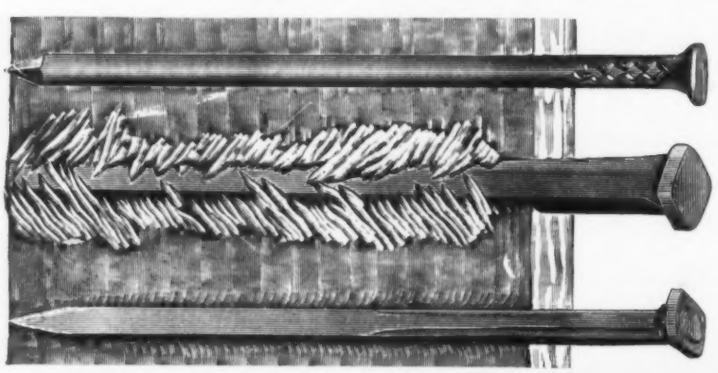

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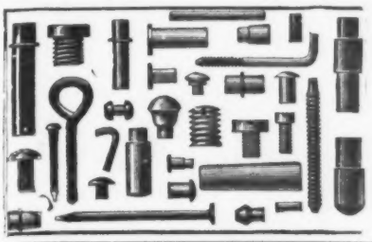

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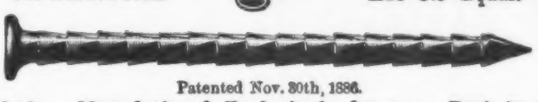

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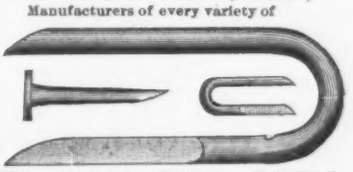

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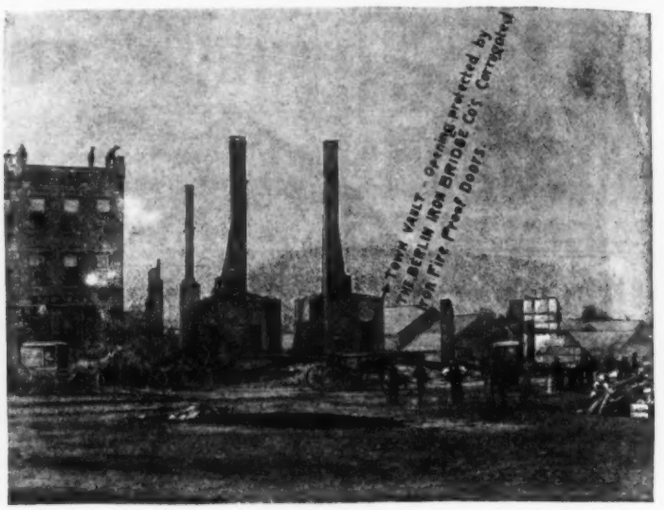
The Litchfield County Court House before the Fire.



After the Fire

THIS LETTER EXPLAINS IT ALL.

WATERBURY, CONN., August 17, 1888.

THE BERLIN IRON BRIDGE CO., East Berlin, Conn.

Dear Sirs:—I have just returned from Litchfield, Conn., where I examined the ruins of the new Court House. The Court House has been entirely consumed by fire, and nothing is left standing but two chimneys and the two brick vaults which were built to preserve the Town and County Records. The doors on the vaults which were furnished by your Company protected them perfectly. The vaults being new, no records had yet been placed in them, but the inside woodwork and some yellow pine shavings lying on the floor were unscorched. The outside doors are, of course, more or less warped and burned, but the inside vestibule doors are unharmed, the paint not being blistered; in fact, they are in as good condition as when they were put in and will be used again. I have never seen a corrugated iron box door of any kind exposed to so severe a heat as this, and shall have no hesitation hereafter in recommending your Corrugated Iron Doors for fire-proof vaults. I consider this a very severe test, as the building was entirely of wood and very heavily timbered.

Yours, very truly, ROBERT W. HILL, Architect.

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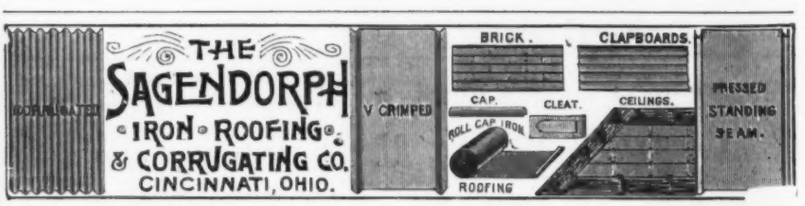

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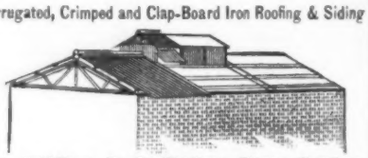

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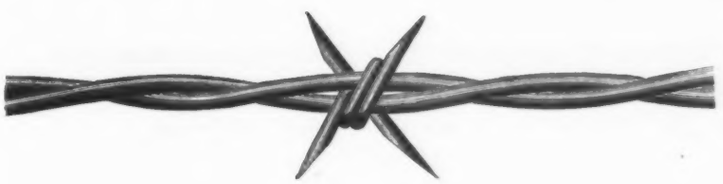

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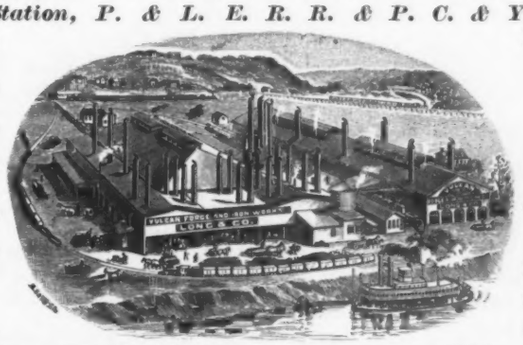

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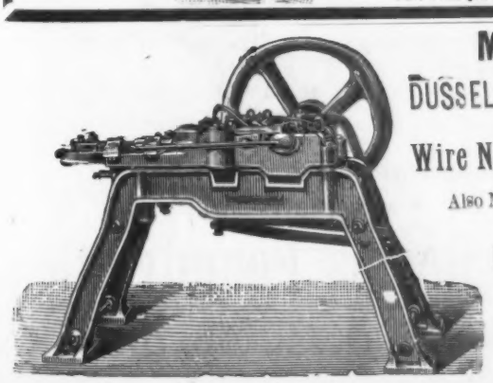

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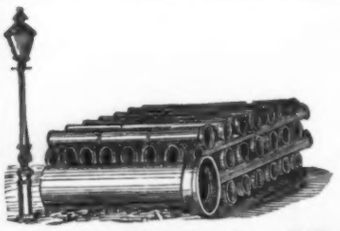

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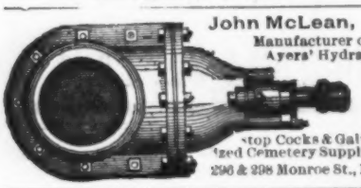

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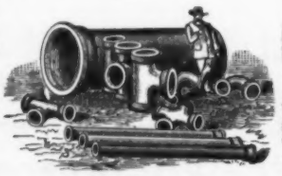

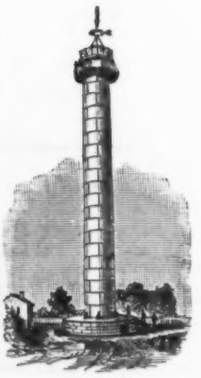

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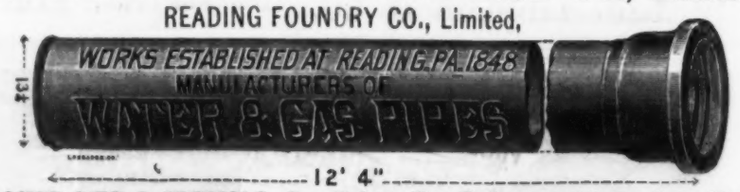

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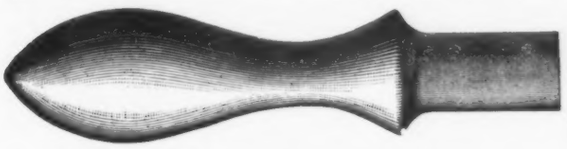

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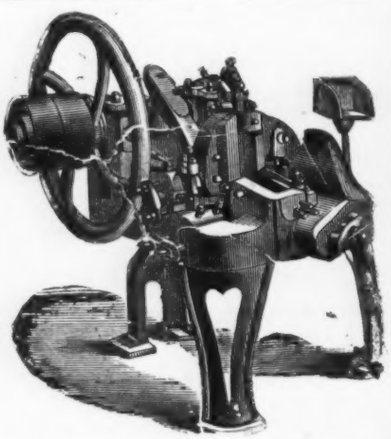

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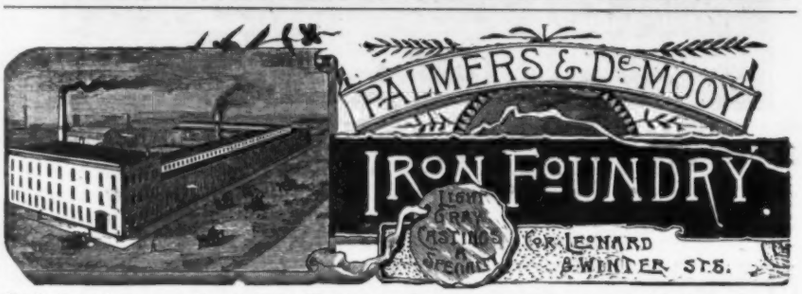

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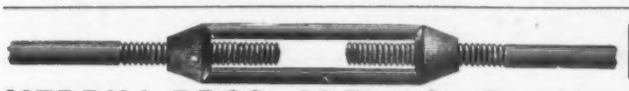

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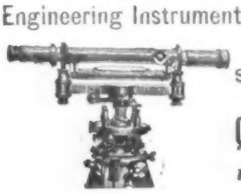

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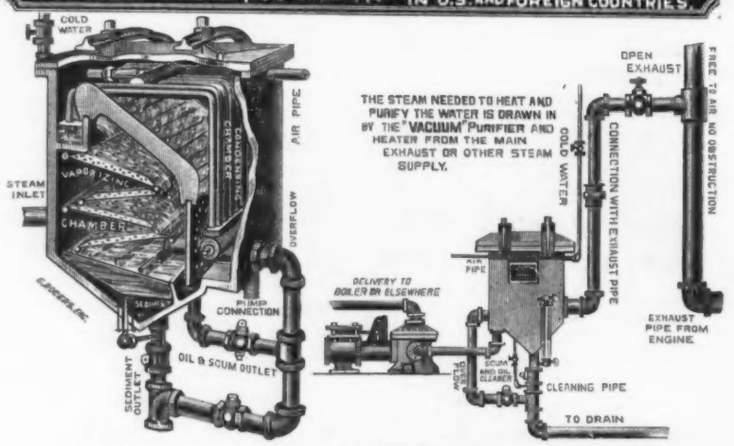

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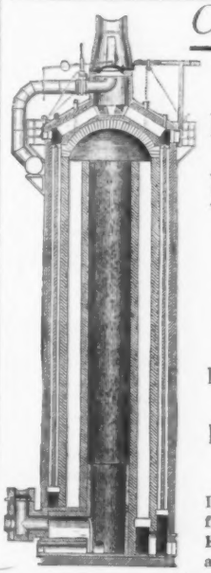

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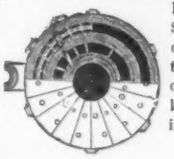

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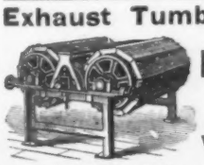

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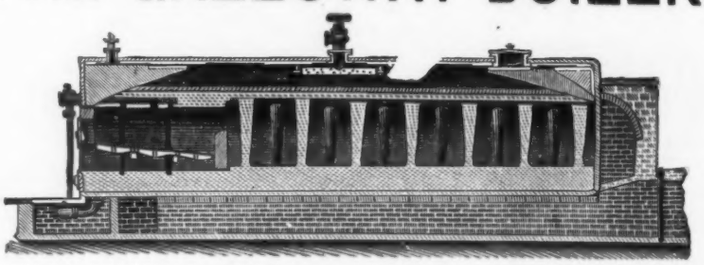

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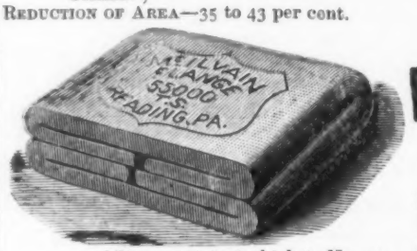

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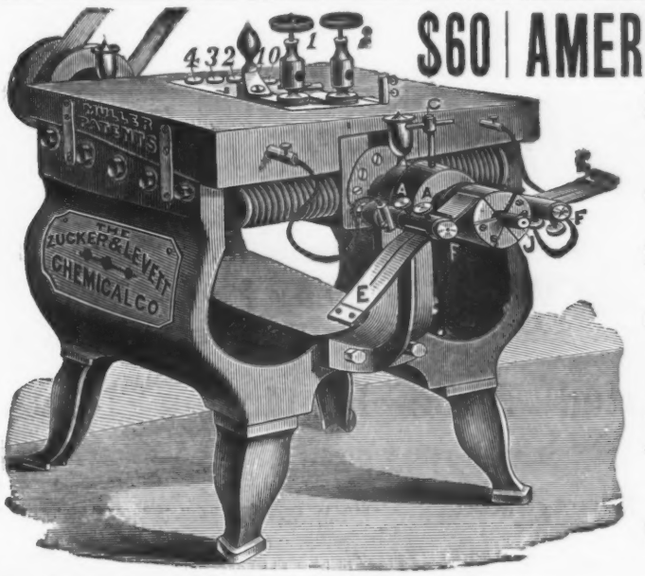

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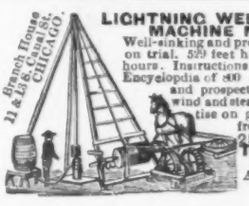

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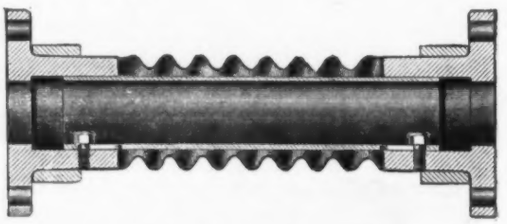

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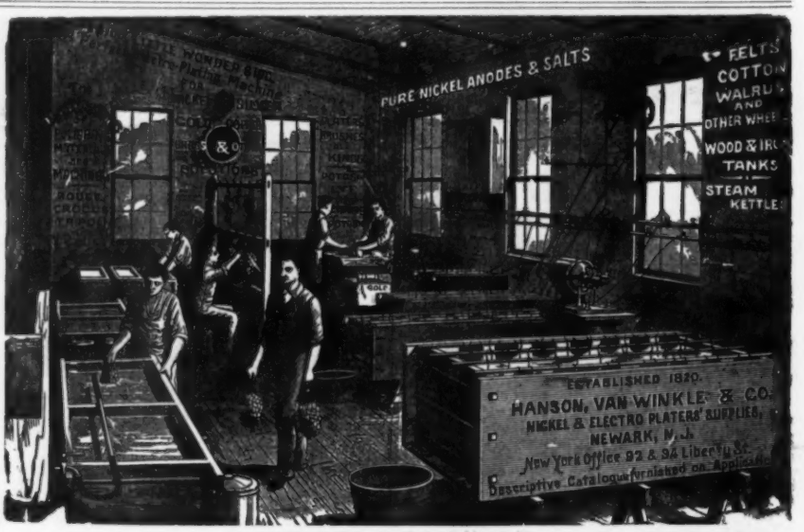

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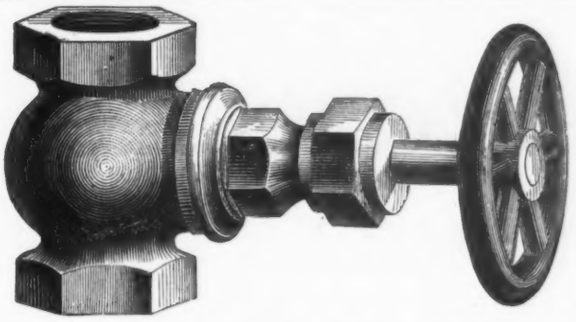

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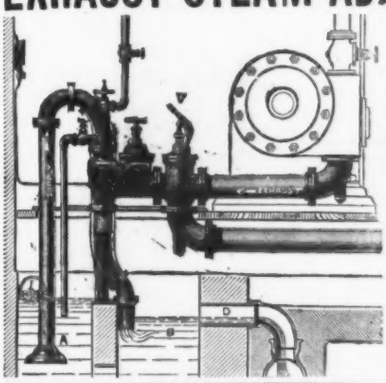

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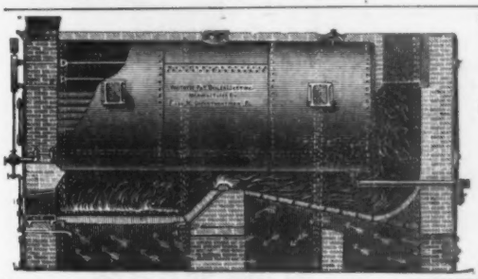

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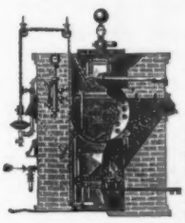

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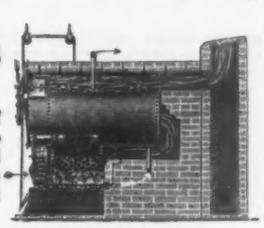

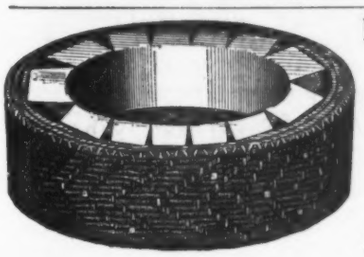

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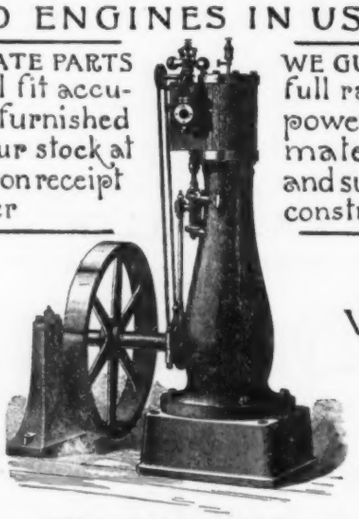

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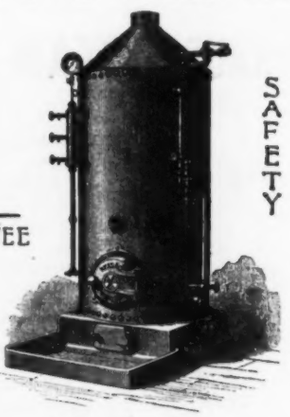

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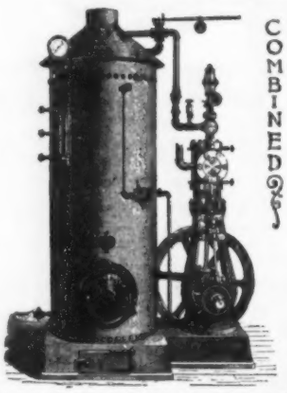

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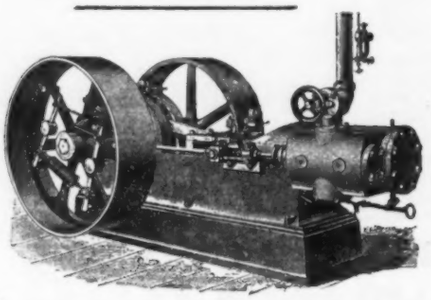

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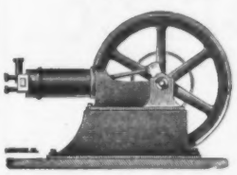

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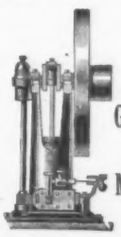

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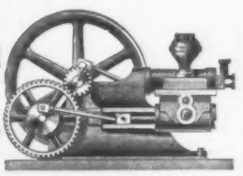

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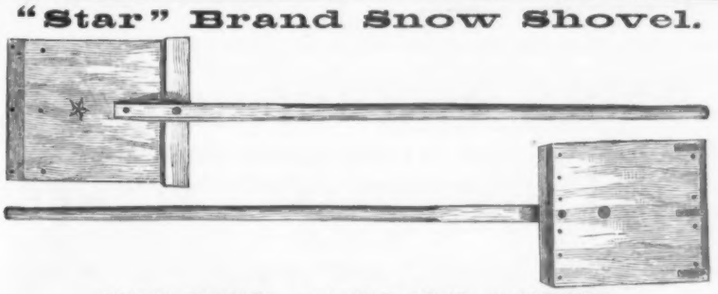

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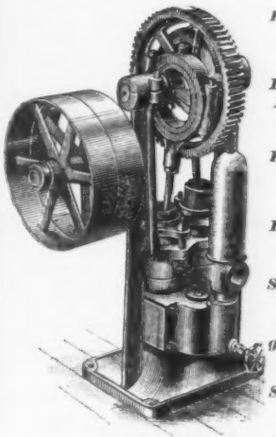

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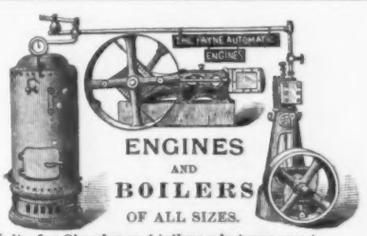

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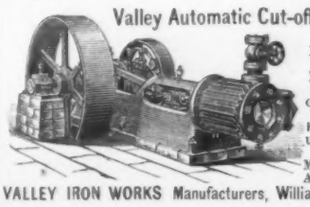

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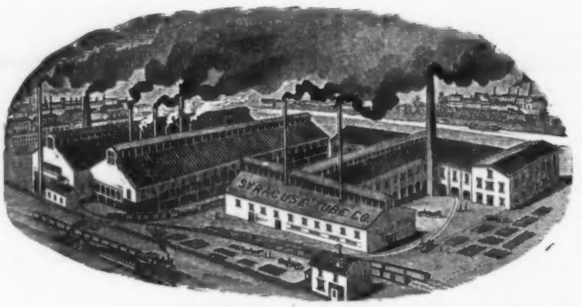

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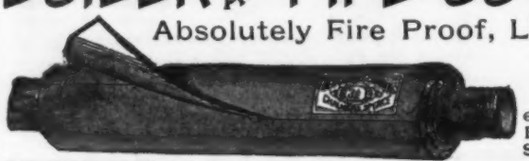

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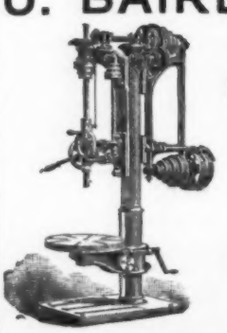

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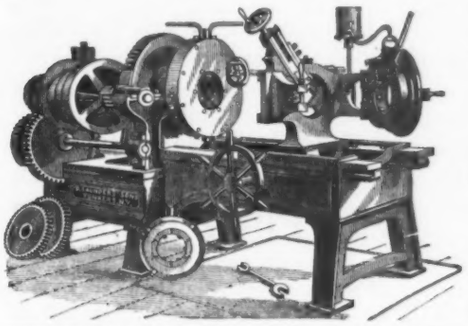

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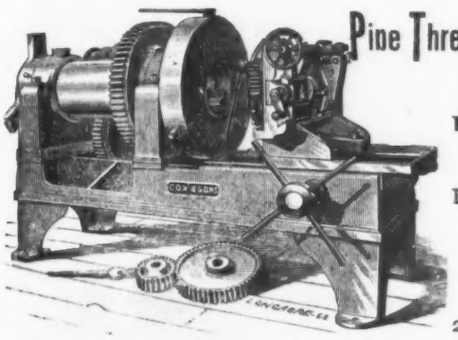

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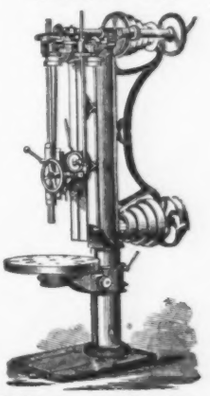

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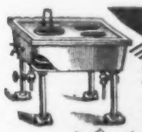

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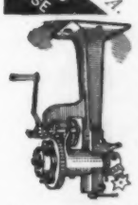

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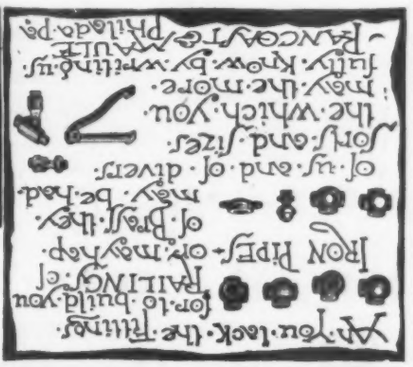

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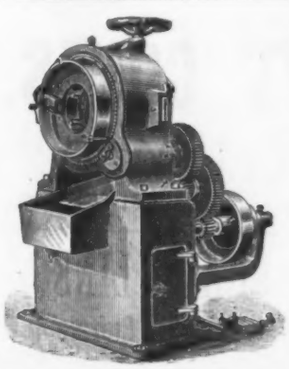

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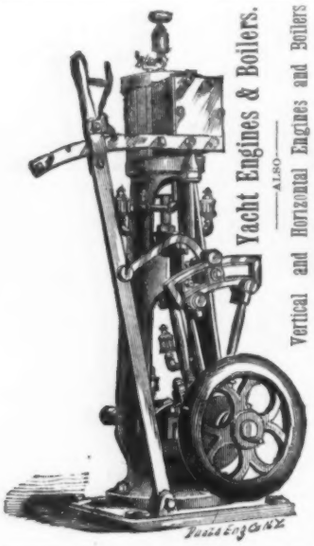

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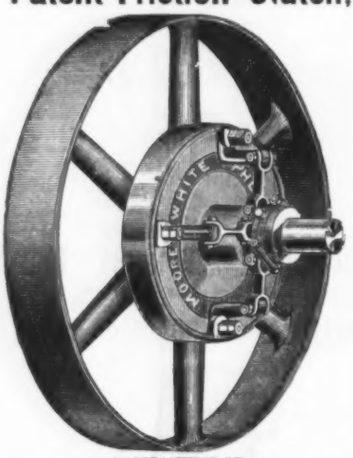

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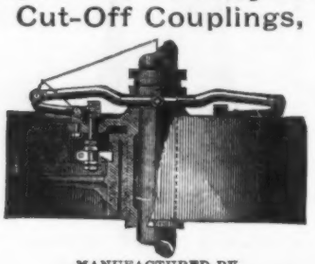

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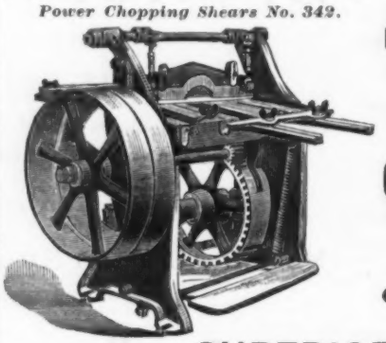

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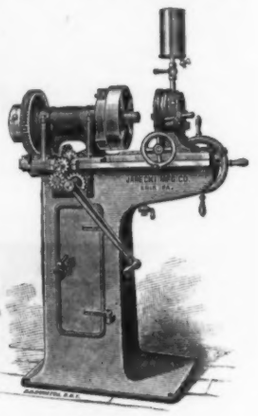

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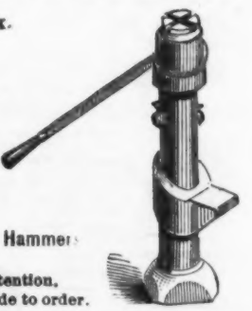

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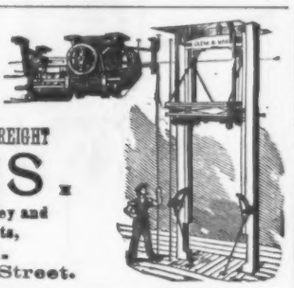

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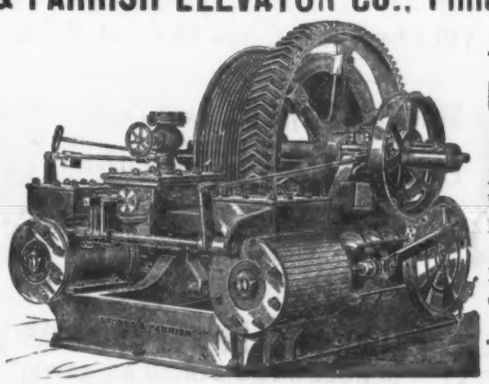

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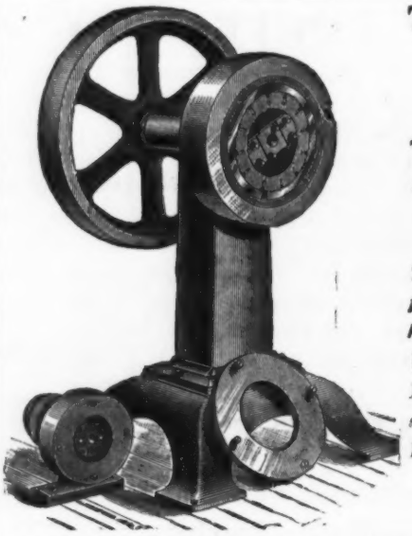
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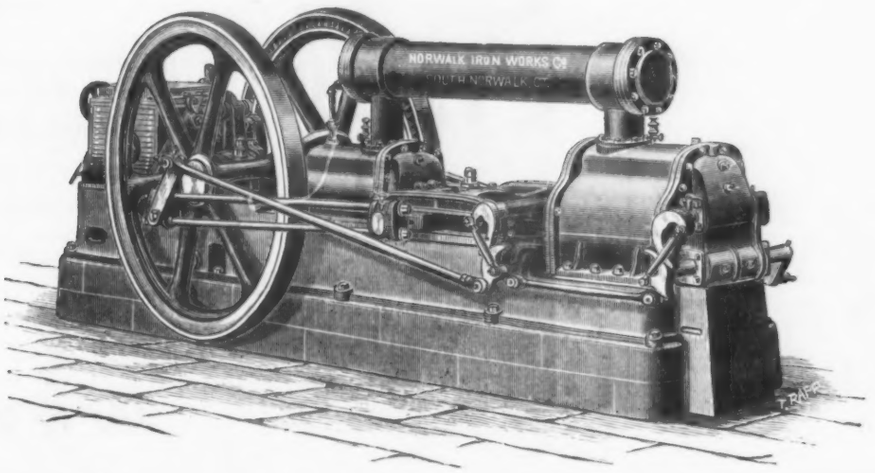

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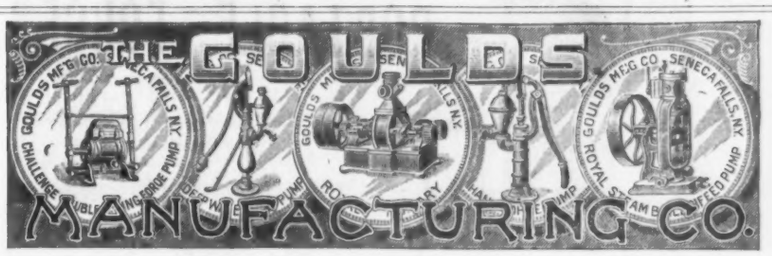

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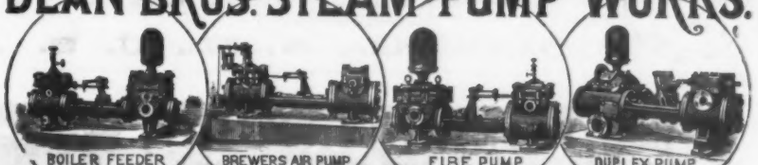

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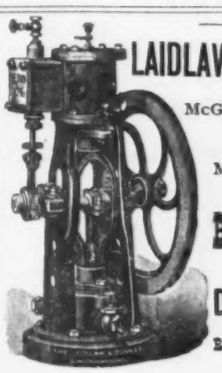

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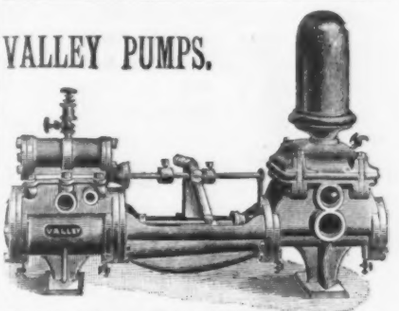

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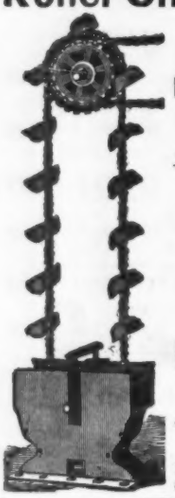

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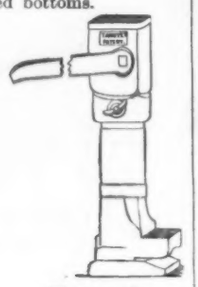

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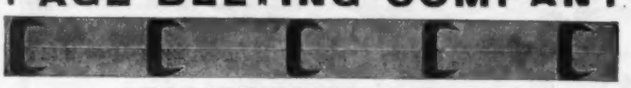

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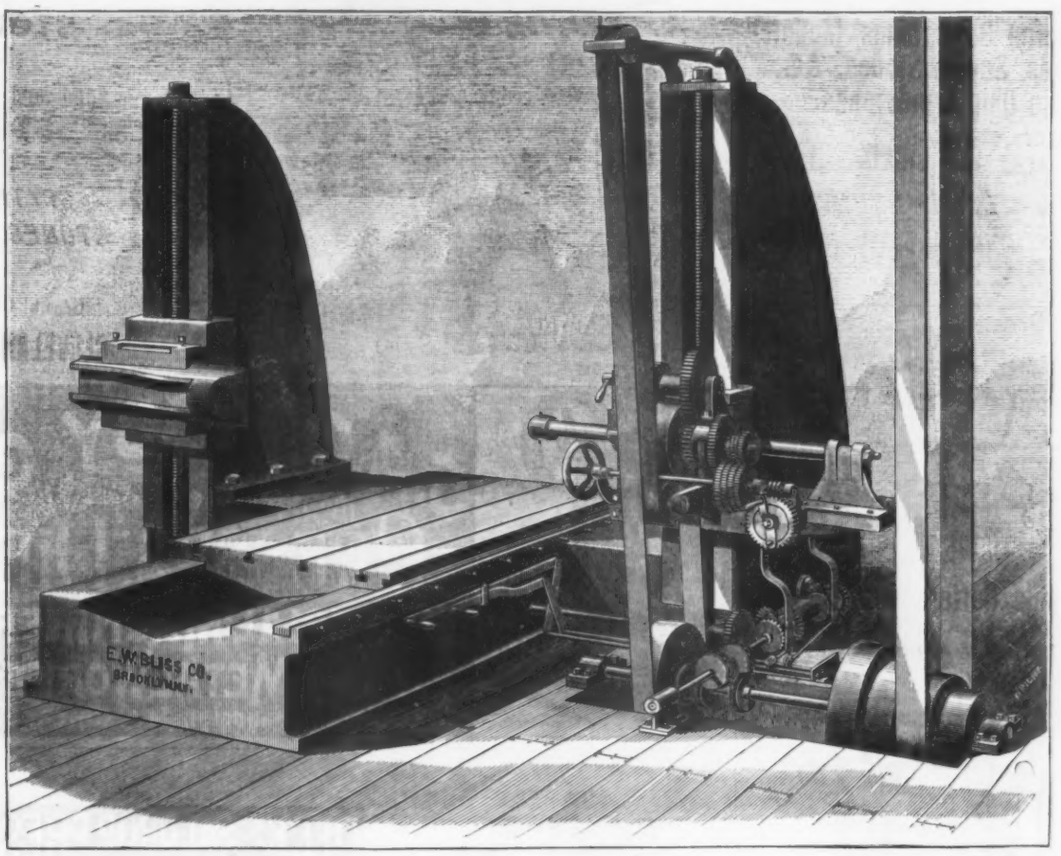

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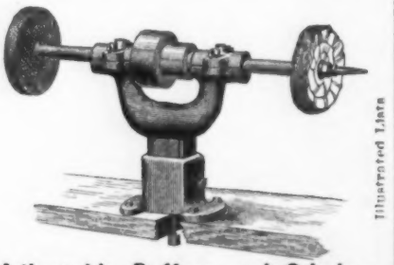

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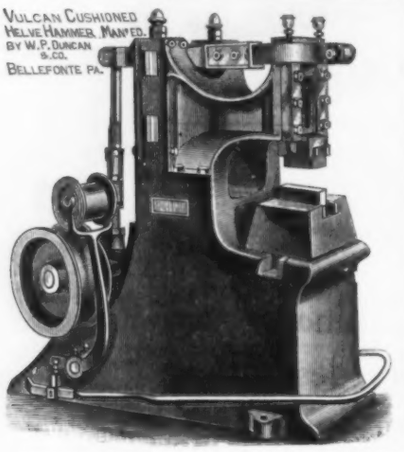

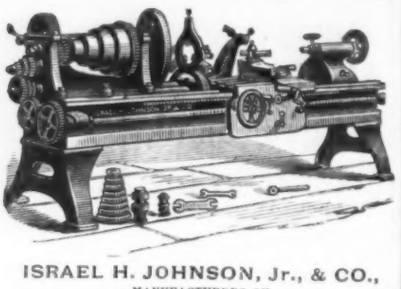

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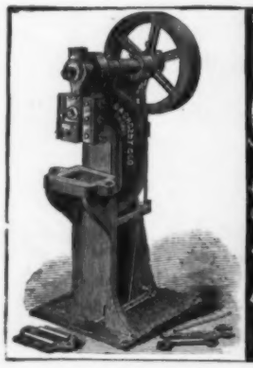

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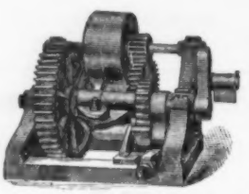

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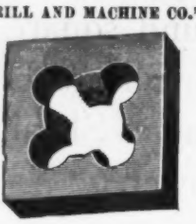

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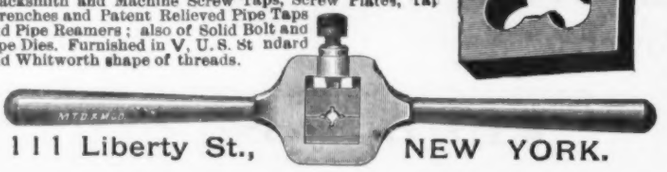

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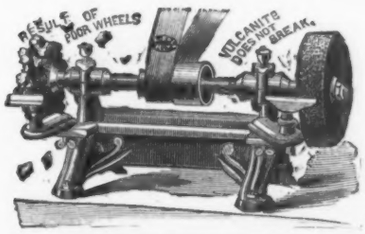

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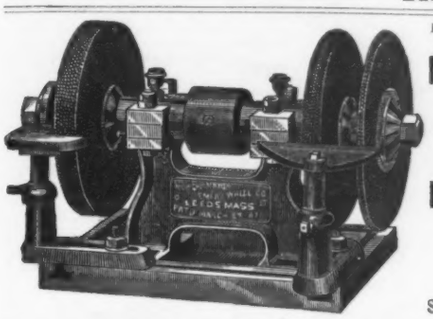

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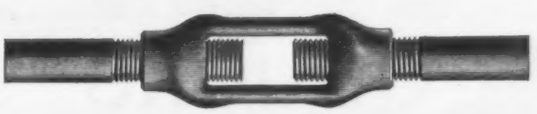
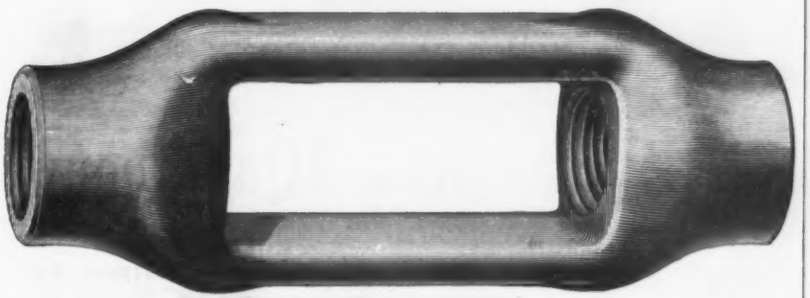
BEST.  CHEAPEST



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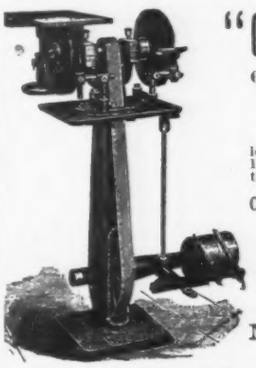

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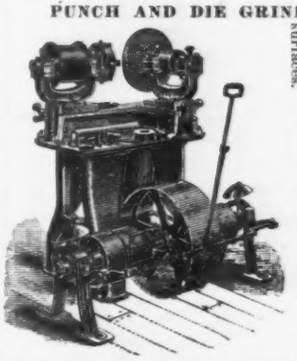

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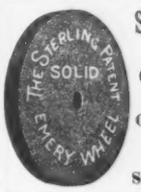

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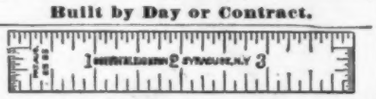

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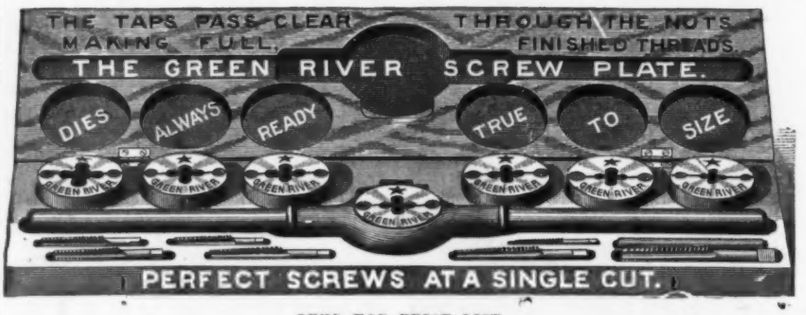

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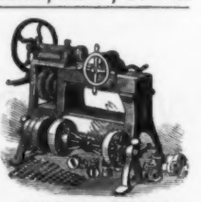

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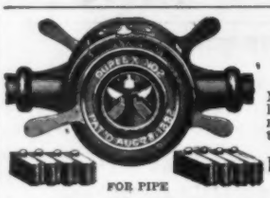

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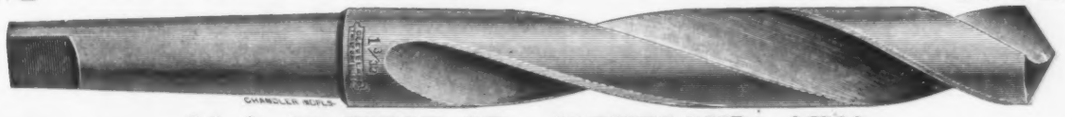

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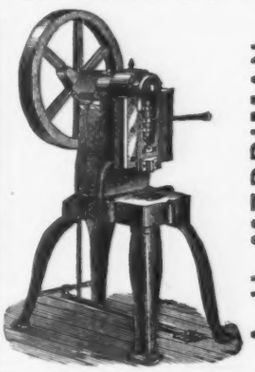

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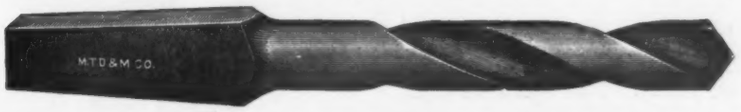

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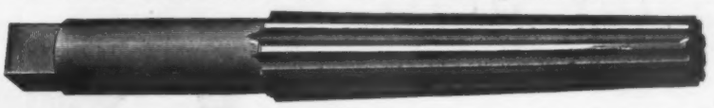

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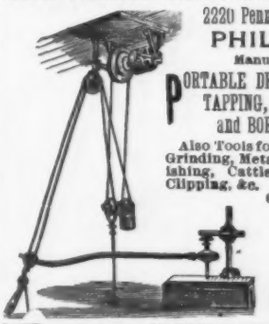

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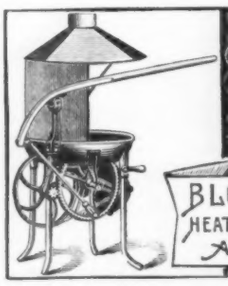

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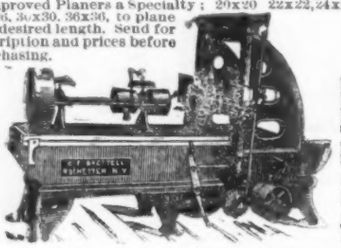

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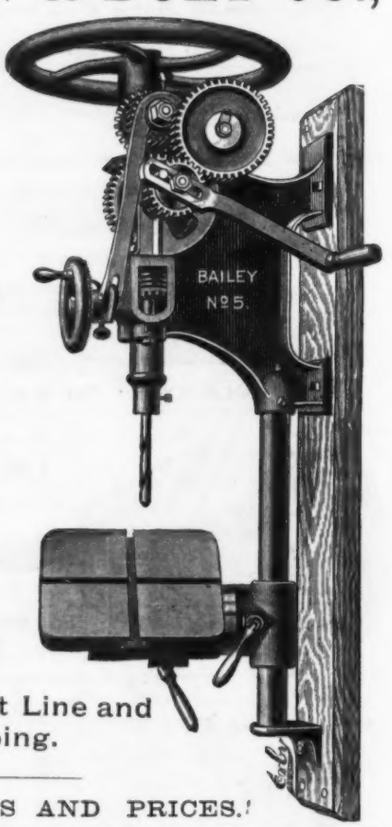

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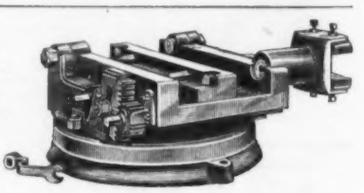

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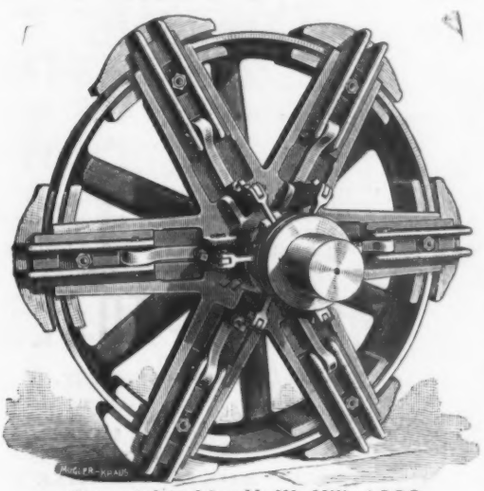

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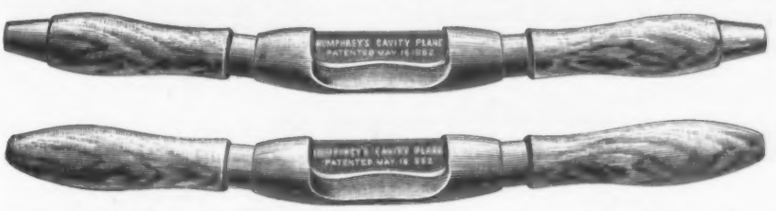

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10 x 6 x 10 Delamater Duplex.
10 x 8 x 12 Knowles Pump.
10 x 5 x 13 Cameron.
9 x 7 x 10 Niagara.
8 x 8 x 8 "
7 x 4½ x 7 Delamater Duplex.

MARVIN BRIGGS, 12 Broadway, N. Y. 61 Rutgers Slip, N. Y.

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Baker Blowers, Nos. ¼, ½, 1, 2, 4½, 5½ and 6.
Root Blowers, Nos. 1, 5 and 7.
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Two Wheelock Engines, Automatic, 24 x 48 inch.
Westinghouse Engines, Automatic, 15 and 60 H. P.
Other machinery not mentioned; write for what you want to

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ENGINES.

14 in. x 48 in. Corliss Beam.
26 in. x 6 ft. "
18 in x 48 in. Greene Horizontal.
One pair Corliss Horizontal, 30 in. x 6 ft., first-class, now running.
New Engines, from 2 H.-P., Vertical or Horizontal.

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6-in. Crank Shaper, B. & P. New.
8-in. " " Good order.
9 in. " " H. & P. "
12-in. " " " "
12-in. " " Cheap.
10-12-15-in. " Juengst. New.
15 and 20-in. Friction Shaper, Juengst. New.
15 in. Crank Shaper, L. D. & Co. New.
20, 26 and 32 in. Shaper, L. D. & Co. New.
24-in. Shaper, Bridgeport. New.
12 in. stroke Crank Planer. Good.
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87 in. x 8 ft. " Litchly. "
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No. 1 Screw Machine, wire feed, P. & W. A 1.
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25 lb. Dead Stroke Hammer, Justice, Cheap.

Large line of Engine Lathes, Planers and Drilling Machines in stock. Send for list.

Cold Rolled Shafting in stock, all sizes.

Full line of new Machinery. Write for what you want. E. P. BULLARD,
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Special Bargains in Machinery, offered for ready sale during the months of Aug., Sept. and Oct.

One 40 H.-P. Supplee Engine, new.
One 9 x 12 N. Y. Safety Marine Engine, with Boiler.
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One 8 x 12 Horizontal Engine.
One 6½ x 10 Horizontal Engine.
One 1½ H.-P. Combined Engine and Boiler.
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One 8 H.-P. Shapley Engine, with 12 H.-P. Boiler.
One 2 H.-P. Baxter Engine.
One 4 H.-P. Baxter Engine.
One 4 H.-P. Vertical Boiler.
One 6 H.-P Vertical Boiler.
One 8 H.-P. Vertical Boiler.
One 25 H.-P. Vertical Boiler.
One 35 H.-P. Vertical Boiler.
One 60 H.-P. Vertical Boiler.
One 20 H.-P Horizontal Tubular Erie Boiler
One 25 H.-P. Hor. Tubular Robt. Wetherill Boiler
One 40 H.-P. Horizontal Tubular Boiler.
One 25 H.-P. Babcock & Wilcox Boiler.
One 14 in. Engine Lathe, 6 ft. bed, Ashton Hand.
One 16 in. Engine Lathe, 6 ft. bed, New York Steam Engine Co.
One 15 in. Engine Lathe, 5 ft. bed, Harris.
One 38 in. Engine Lathe, 18 ft. bed, New Haven Mfg. Co.
One 15 in. Fox Lathe, 5 ft. bed, with all attachments.
One 12 in. Compound Planer.
One 50 in. Boring and Turning Mill.
One Cope & Maxwell Deep well Pump.
One No. 5 Gates' Crusher.
One Ingersoll Steam Drill, 3½ in. cylinder. Good as new.

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FOR IMMEDIATE DELIVERY.

1 32 in. x 18 ft. bed, treble-geared **LATHE.**
1 40 in. x 36 x 12 ft. stroke **PLANER.**
1 42 in. **CAM MILLING MACHINE** for Printing Press Cam.

For prompt delivery.

1 72 in. Pulley **TURNING MACHINE.**
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The Newark Machine Tool Works,

NEWARK, N. J.

FOR SALE.

One Second-hand Twiss Automatic Engine 10x20; also new Automatic Engines, from 20 to 10 h.-p., and Vertical Engines, 4, 6 and 8 h.-p.

NELSON W. TWISS, New Haven, Ct.

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At less than half first cost, a Delamater Duplex 16 in. x 36 in. Compressor, in thoroughly good working order. Address

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ENGINE LATHES.

THE HENDEY

14-inch Engine Lathe

—IS A—

First-class Machine in every particular.

It is strongly geared, has a raise and fall Rest, Hollow Spindle, large bearings, is convenient to handle, and does light or heavy work equally well.

It is becoming the most popular Lathe of this size in the market.

Have other Sizes of Lathes, also Shapers, Planers, &c. Send for Catalogue and prices.

THE HENDEY MACHINE CO.,

Torrington, Conn.

SECOND HAND

MACHINISTS' TOOLS.

1 Planer, planes 12 ft. long, 48 x 38, double heads on cross head
1 Planer, planes 12 ft. 36 in. x 34 in.
1 7-ft. 28 x 28 Planer.
1 5 ft. 24 in. x 24 in. Planer.
1 18 ft. bed, 50 in., Engine Lathe.
2 8-ft. 18 in., Engine Lathe.
1 5 ft. bed 12 in. Reed Lathe.
2 Monitor Head Lathes.
1 9-ft. bed, 16 in., Engine Lathe.
1 Horizontal Boring Mill, 48 in. swing.
1 No 1 Pratt & W. Screw Machine, Wire Feed.
1 No. 2 Farrell Power Press.
1 6-spindle Pratt & Whitney Drill.
1 2-spindle Edging Machine.
1 6-in. Crank Shaper, A1 order.

Send for List of Second-hand Tools.

New York Machinery Depot,

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PULLEYS, FLY WHEELS, STEAM PUMPS, ENGINES, BOILERS.

For further particulars apply to

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W. P. DAVIS

North Bloomfield, N. Y.

HAS FOR SALE

50 Key Seating Machines.
50 Standard 20-in. Drills.
1 Engine Lathe, each 18 in., 20 in, and 22 in.
1 Shaper, each 15 in , 20 in and 24 in.
1 38 and 1 50 H. P. Automatic Engine.
1 each 10, 15 20, 25, 30, 40, and 50 H. P. Boilers.
All the above are new and first-class.
The following second-hand Engine and Boilers:
1 each, 25, 35, 60 and 8 H. P. Horizontal Boilers and
1 35 H. P. Engine, All the above in No. 1 order.

FOR SALE.

Blowing Engine, new and first-class; Steam Cylinder 36 in. diam.; Blowing Cylinder 84 in. diam.; Stroke 48 in.; Weight 71 tons. Can ship in ten days' notice.

CLEVELAND SHIP BUILDING CO.,
Successors to Cuyahoga Steam Furnace Co.,
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FOR SALE—Two 80 horse-power Locomotive Boilers, first-class condition, good for 75 lbs. econd-hand Iron Tanks, all sizes. Wrought and Cast Scrap, Red and Yellow Scrap, Brass, &c.

BUSSENIUS & CUNLIFFE,

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Rolling Mill Machinery

For Sale.

SHEARS, ENGINES, BOILERS, FLOOR PLATES, &c.

One Heavy Plate Shear, 48-inch throat.
" Large Lever Shear. Cutting old rails.
" Small " " " scrap iron.
" Rotary " " " strips 5-16 in.
" Large Upright " " tops and bot'ms 1 in
" Small " " " ¾ in
" Upright High-Pressure Engine, 16 x 18 in.
Two Winslow Squeezers. One new.
One Dudgeon Steam Hammer, 18 in. diam., 40 in. stroke.
Upright Tubular Boilers. 15 ft. long. 60 in. diam.
Cylinder Boilers, 20-24 ft. long, 30 in. diam.
Stacks, 30 to 50 ft. long, 30 in. diam.
One Crane (iron) about 5 tons.
One Crane about 5 tons capacity.
Boshes, Steam Piping (cast and wrought iron).
Blast Pipe, Cinder Buggies, Tanks, &c.
Beam Engine, 14 x 30 in.

The above are in good order, and for sale in lots to suit for immediate delivery.

THOMPSON C. GILL & CO.,

210 S. Third St., Philadelphia, Pa.

SECOND-HAND

DROPS AND LIFTERS

bought, sold, or taken in exchange for new.

BEECHER & PECK,
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ROLL TURNING LATHES, BLOWER AND ENGINE.

One Single Roll Turning Lathe, 18 in. Roll
" Upright Engine, 6½ in. x 17 in.
" Root Blower No. 7.
All in good order.

THOMPSON C. GILL & CO.,
210 So. 3d St., Philadelphia, Pa.

GOOD SECOND HAND TOOLS.

I want to buy for cash good second-hand

LATHES, PLANERS AND DRILLS.

Address " A. B. S.,"

Office of *The Iron Age*, 66-68 Duane Street, N. Y.

ROLLING AND NAIL MILL MACHINERY FOR SALE.

Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).

One 16-in. Nail Plate Train of three stands of rolls, with pinions, tools and fixtures complete.

One 18-in Muck or Forge Train, two stands of rolls.

One 500-Horse-Power Cross-Head Beam Engine, with condenser, pumps and other connections.

70 Nail Machines.
3 Spike "
3 Guillotine or Plate Shears.
15 Grindstones, fixtures and countershafts.
43 Gould's Patent Nail Feeders.

About 600 ft. Shafting with pulleys; also Lathes, Planers, Drills and all necessary tools to do repairs.

All in perfect running order and will be sold cheap, as a whole or in parts. Above now located at Weymouth Iron Works, East Weymouth, Mass.

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or J. M. LEONARD, Somerset, Mass.

FOR SALE.

ONE OF GEORGE H. CORLISS'S UPRIGHT ROLLING MILL ENGINES;

Cylinder, 32 in. x 60 in.; Shaft, 17 in. Diameter, with fly wheel of 25 tons weight and 20-foot diameter fitted to the shaft; also 1 Berryman Heater 4 feet diameter, 12 feet high, with steam and exhaust pipe and fittings for same; also Sturtevant Steel Pressure Blowers, 6 ft. diameter; Outlet, 20 x 24, with 14 in. pulley on each side for 12-in belt. Address

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FOR SALE.

ONE SCREW PLANER.—14-foot Bed; will take in 4 feet between uprights.

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FOR SALE. A Brown (Fitchburg, Mass.) Engine 20 in. x 48 in., Corliss 18 in. x 42 in.

FRANK McSWEGAN & SONS,
Bridge Store, Dover St. and Franklin Sq., New York.

FOR SALE,

CHEAP.

1 Pair 20 in. x 48 in Corliss Automatic Engines.
1 12 x 42 Green Automatic Engine.
1 12 x 24 in. Horizontal Engine.
1 8 in. x 15 in. " " New.
1 5 in. x 10 in Horizontal Engine.
1 10 H.-P. Horizontal Engine.
1 15 H.-P. High Speed N. Y. Safety Engine.
1 6 H.-P. Baxter Engine and Boiler.
1 4 H.-P. Portable Engine and Boiler.
1 6 Horse-Power Upright Engine.
1 10 Horse Upright Engine
1 5 x 12 Double-Drum Hoisting Engine and Boiler.
2 5 ft. x 16 ft. Horizontal Tubular Boiler.
1 4 ft. x 14 ft. Horizontal Tubular Boiler.
1 40 H.-P. Locomotive Boiler.
1 36 in. x 11 ft. New Locomotive Boiler.
1 15 Horse Upright Boiler. Nearly new.
3 15 H.-P. New Upright Steel Boilers.
2 New Steel Yacht Boilers.
1 16 in. x 6 ft. Engine Lathe.
1 14-in Stroke, Hewes and Phillips Shaper.
1 36 in. Back-Geared Drill. Self-Feed.
1 Ames 4-Spindle Drills.
1 Pratt & Whitney 4-Spindle Drill.
1 Double-Spindle Milling Machine.
1 12 in. Heavy Slotting Machine.
1 4 in. Morris & Tasker Pipe Threading Machine.
1 set Rubber Grinding Rolls.
6 Tanks, 8 ft. x 5 ft. x 5 ft. 3 in.
Nos. 3, 4, 5 and 6 Woodward Steam Pumps.
4 4 ft. Burr Mills, Complete.
1 Bogardus Mill.
12 Contractors' Side-Dumping Cars.
3 Ingersoll Rock Drills
2 Guild & Garrison Air Pumps.
2 Large Vulcanizers or Digesters.
3 Jacketed Kettles and Tanks.

ROBT. J. GRAY,

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FOR SALE, CHEAP, Wire Machines.—6 second-hand Wire Nail Machines. 2 Rattlers or Polishers, 1 Emery Wheel, stand and wheels complete; 1 Engine Lathe, nearly new, for making dyes, and in first-class condition. Have been run about eight months, and of the latest pattern. The machines will cut from ⅛ in. to 3½ in. nail. Very strong and durable machines, and of latest improved style. For particulars please refer to me. All in running order. GEO. A. CARTER, Box 434, Brockton, Mass.

FOR SALE AT LOW PRICES.—1 each, 12 and 16-in. Turret Lathe. Warner & Swazey, good order. 1 2-inch Automatic Turret Lathe, Freck new, $150. 1 2 Spindle Drill Press with Adjustable Spindles, $50. 1 No. 2 Garran Hand Feed Miller, good order, $75. 1 Power Punch, punches ⅛ x ⅛ new, $1 5. 2 Large Screw Punches, good order and cheap. 1 3-Spindle Horizontal Nut Tapper, good order, $75. 1 36-inch Car Wheel Borer, good order, $250. 1 36-inch Pulley Turning Lathe. 1 Seymour Pulley Balancing Machine. A large assortment of Lathes, Planers, Shapers, etc. New and second hand. Send for catalogue.

W. H. ROBERTSON, 51 So. Canal St., Chicago, Ill.

FOR SALE—IMMEDIATE DELIVERY.

One new Star Tool Co.'s Cutting-off Machine, capable of cutting 5-in stock.

Two new Star Tool Co.'s Traverse Drills.

Twenty new modern Lathe and Planer Chucks, popular makes, all sizes, at large discounts from manufacturers prices.

DIAMOND MACHINE CO.,
Chicago, Ill. Providence, R. I.

ENGINES AND BOILERS.

One 18 x 48 Horizontal Corliss Engine.
" 16 x 32 " Wright "
" Copeland & Bacon Double Hoisting Engine, 8½ x 10.
Two Horizontal Tubular Boilers, 80 H.-P.
One No. 6 Knowles Steam Pump.
" Worthington Duplex " 7½ x 4½ x 10.

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SPECIAL SALE.

26 in. x 24 in. x 6 ft. 2d-hand Planer. Fair order		$275
34 in. x 28 in. x 8 ft. " " " "		400
26-in. Upright Drill Press	Second-hand	125
10-in Crank Shaper. New		225
20-in Friction Shaper. New		300
15 in. x 6 ft. Engine Lathe, Rod and Power Cross Feed.	New	190
	New	240
17 in. x 8 ft.	New	175
15 in. x 6 ft.	New	

The above tools can all be shipped at once.

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TUBULAR BOILERS.

For sale, three 60 H.-P. Vertical Tubular Boilers (will guarantee 80 lbs. or over, Hartford inspection). Good as new. Only used six months. $300 each on cars, cash or exchange for other material.

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TO LET.

Office and Sample Room.
One half of Basement. All of Subcellar
HUMASON & BECKLEY MFG. CO.,
80 Chambers Street, New York

FOR SALE.

Wire Mill Machinery.

Enquire for particulars of the

LOVELL MFG. CO., Limited,
Erie, Pa.

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80 H.-P. Vertical Engine; first-class order.
20, 30 and 50 H.-P. Horizontal. " "
25 H.-P. Portable Engine and Boiler.
Double 6-in. Hoisting Engine and Boiler.
Single 8-in. Hoisting Engine and Boiler; first-class order.
4 H.-P. Otto Gas Engine; first-class order.
33 x 11 ft. Planer. " "
25 in. x 12 ft. Screw-Cutting Lathe; first-class order.
20 in. x 8 ft. Screw-Cutting Lathe; new.
18 in. x 8 ft. Screw-Cutting Lathe; new.
15 in x 6 ft. Screw-Cutting Lathe; new.
14 in x 6 ft. Screw-Cutting Lathe; new.
Engine Boiler, Rock Drills. Chain Elevator and Conveyers.

FRANK TOOMEY,

131 N. 3d St., - Philadelphia, Pa.

WE have at our Buffalo store, 415 Hamburgh street, a number of second-hand Locomotive, Upright and Horizontal Boilers, with good flues and in good serviceable condition, which we will sell at a sacrifice.

For further information call or address above number, or to

P. J. McARDLE & CO.,
Cor. Church and Arch Sts.,
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Valuable Manufacturing Property for Sale.

The real estate and buildings now occupied by the Watertown Steam Engine Co., of Watertown, N. Y., will be offered for sale. The property covers about four acres; has an unfailing water power on the Black River estimated at 225 H.-P. Consists of machine shop, foundry, boiler shop, blacksmith shop, store houses and tenements. The buildings are equipped with line shafting, and could be adapted to a large variety of manufacturing purposes. Moderate cost of labor, combined with low freight rates and nearness to raw material, with an abundant water power, make Watertown an exceptionally good point for manufacturing. It is essentially a manufacturing town.

The property can be divided and sold in parcels if desired. Property is sold because the business has outgrown its present quarters and is to be moved to another location in the same city, where more room is available.

Address WATERTOWN STEAM ENGINE CO., Watertown, N. Y.

FOR RENT.

VALLEY FORGE MILL AND WATER-POWER

With new Dam and Flood Gates,

Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.

For particulars, address

J. B. CARTER, Hardware Manfg. Agent,
504 Commerce St. Philadelphia.

FACTORY LOCATIONS.

Correspondence invited from manufacturers seeking new locations, or from parties wishing to engage in manufacturing enterprises.

Full information given regarding the many advantages offered by our city as a manufacturing centre, among them being 16 lines of railroads; coal at 50 cents per ton, &c., &c,

Address,

J. E. CLAREY,
Acting Secretary,
The Commercial Exchange,
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FOR SALE.

Half interest in a paying manufacturing establishment, consisting of machine shop, foundry and blacksmith shop, &c. Business now earning good interest on money. Tools in excellent condition. Shops run overtime all spring and summer. This interest is part of an estate, and is to be closed out. Address

J. H. WHITING, Ex.,
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ASSIGNEE'S SALE
—OF—

The Lomas Forge and Bridge Works,

OF CINCINNATI, OHIO.

BY ORDER OF THE PROBATE COURT, the undersigned will receive written proposals up to Monday, October 8, 1888, at 12 M., at the office of the company, No. 217 West Second Street, for the purchase of the above works, consisting of Engine and Boiler, Overhead Travelers and Cranes, Heavy Lifts, Power Presses, Drill Presses, Screw Cutters, Milling Machines, Lathes, Hydraulic Press, Shaping Machines, &c., and all other Machinery, Tools, Fixtures, Office Furniture, Material, Goods on hand, and other personal property belonging to the concern. It is thoroughly equipped for making Bridges, Heavy Forgings, Bridge Nuts, Vises, &c.

Proposals will be received for the whole or any part of the property. This property can be seen at any time on the premises, Nos. 209 to 217 West Second street, and a full inventory found in the office.

Terms of sale—One-third cash and the other balance in six and twelve months, with interest and approved security. All bids subject to the approval of the Probate Court.

CHARLES ANDERSON, Assignee.
John W. Herron, Attorney.

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

60-INCH LATHE WANTED AT ONCE.

FOSDICK & PLUCKER
SIXTH and CULVERT STS., CINCINNATI, OHIO.

T RAIL FOR SALE.

About ten tons second-hand T Rail, 20 lbs. and fifty tons same, 35 lbs. to the yard. Also two dump car trucks.

J. B. KENDALL,
Washington, D. C.

FOR SALE.

Old Iron and Metals in large or small quantities by

PETTIS & HIGGINS,
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Fire Clay for Sale or Lease.

Tract of 320 acres near Cumberland, Md. 2½ miles down grade to Pittsburgh and Connellsville and Penna. R. R's. Coal on property. Opening showing quality and quantity of Clay and Coal. For samples, information or inspection of property apply to

ROBERT R. HENDERSON,
Cumberland, Md.

One-quarter interest in a manufacturing company for sale very low.

Address,

JOHN BROWER,
P. O. Box 1423,
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STEEL PLATE.

For Sale, a lot of Steel Plate 5-16 in. to ½ in thick up to 108 in. wide; will shear in size and shapes to suit.

THOMPSON C. GILL & CO.,
210 So. Third St., Philadelphia.

FOR SALE.—A COMPLETE RETAIL STOCK OF BUILDERS' HARDWARE AND TOOLS. Store located in a flourishing city of 150,000 inhabitants in the Northwest. Has the largest and best trade in the city; business last year $90,000. Stock will inventory from $30,000 to $35,000. Good reasons given for selling. Address

"MINNESOTA,"
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FOR SALE.

A thoroughly well assorted jobbing stock of Shelf Hardware, situated in one of the foremost Missouri River cities. Do an annual business of from $300,000 to $400,000 and will increase each year. Jobbing trade alone of the city for 1887 exceeded $10,000,000. Building now occupied is one of the best arranged and equipped for the easy handling of goods in the West. Can give purchaser lease for three to five years at a very reasonable rent. The city enjoys as favorable seabord and distributing freight rates as any in the West. Territory tributary to the city makes volume of business limited only by capital employed. Sellers do not care to dispose of stock before January 1st, 1889, and by that time can reduce same to between $50,000 to $60,000. The business has always been and is now profitable, and sellers will show the very best of reasons for disposing of stock and good will. Such an opportunity rarely presents itself for purchase of a well-established and profitable jobbing business. For further and more detailed particulars, apply to or address

WM. B. FOX & BRO.,
No. 97 Chambers St., New York, N. Y.

FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85 two stories. Warehouse, 22 x 30, two stories in rear. Does a large and paying business, which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade. Address

W. L. HAY & SON,
Iowa Falls, Iowa

A RARE OPPORTUNITY.—Coke, pig iron furnace, now in blast with 3¼ miles of railroad connecting with trunk line, 2 locomotives and 19 cars; 51 beehive coke ovens, store, dwellings, 75 double and single tenements and all buildings required. 1305 acres all underlaid with superior quality of coking coal, and iron ore bed on 700 acres. Everything in good working order and offered only on account of owner's advanced age. (Folio 3706.) PHILLIPS & WELLS, Tribune Building, New York.

FOR SALE, IN CENTRAL CALIFORNIA.—Intending to retire from active business, I offer for sale my clean and desirable stock of Hardware, Agricultural Implements, Paints, Oils, &c., &c. The business is now and has been a profitable success for more than 20 years. It is located in the delightful climate of Santa Clara County, Cal., which for health, school and social advantages is unequalled in the United States. $10,000 to $12,000 capital required. For further particulars, address "CALIFORNIA," office of *The Iron Age*, 66-68 Duane St., New York.

FOR SALE.—Hardware Store in town of 1000 inhabitants, doing good business; $2500 stock. Good reason for selling.

Inquire of
McNABB BROS.,
New Wilmington, Pa.

WANTED.

Hardware Specialties to manufacture on contract. Good Patents in our line bought or controlled on Royalty. Local Agents and Canvassers wanted everywhere for our Specialties. Address all correspondence to

W. R. BAKER & SON,
Manufacturers of Hardware Specialties,
Watertown, N. Y.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia please address

J. B. CARTER,
Hardware Manufacturers' Agent,
504 Commerce Street, Philadelphia, Pa.

AGENCY WANTED

OF

WIRE NAIL MILL

For New York, New Jersey and New England States.

Address "D. G.," Box 91,
Office of *The Iron Age*. 66-68 Duane St., N. Y

AGENCIES WANTED.

Two young men, energetic, reliable and good hardwaremen, solicit correspondence with manufacturers wishing to establish agency or branch in Chicago. Would help carry stock of first-class staple line. Address

"H. & G.,"
Office of *The Iron Age*, 95 and 97 Washington street, Chicago.

FOR SALE,
The Business of
W. A. IVES & CO.

Owing to the death of Mr. Ives, who had no partner, his executors offer for sale the above long-established and profitable business.

The factory is situated four miles from New Haven, Conn., where Mr. Ives lived, and the drive is exceptionally agreeable. The property includes two factory buildings and machinery, a large tenement and a good cottage, good water power, steam engine, and the stock finished and in course of manufacture of augers, bits, braces, and kindred tools, many of them patented, and the good will. The works are running full force and time, and are so organized that experience is not essential to a purchaser. Many of the employees own their dwellings, near the factory, and most of them have been connected with it for many years.

Address CHARLES HOLT, Executor, 29 West Twenty-third Street, New York.

$20,000 to $25,000

could be profitably employed in an Iron Manufacturing Business, that has yielded large returns for upwards of a quarter of a century.

Would take either an active or a silent partner.

Full particulars on application.

Address "B,"

Office of *The Iron Age*, 230 South Fourth Street,

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Wanted, Immediately.

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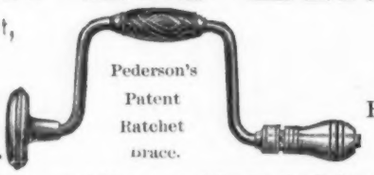

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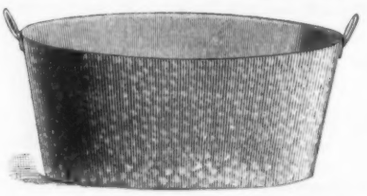

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50	18 x 22 to 20 x 30	20.50	19.50	18 00	....
54	15 x 36 to 24 x 30	22.00	20.75	18.75	....
60	26 x 28 to 24 x 36	25.00	23.00	21.00	....
70	26 x 36 to 26 x 44	26.00	25.00	22.50	...
80	26 x 46 to 30 x 50	28.00	26.50	23.75	...
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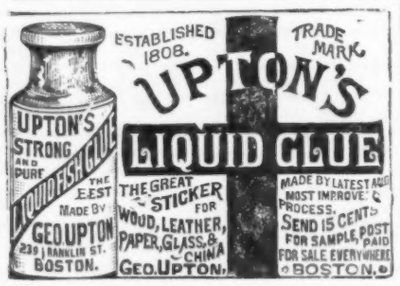

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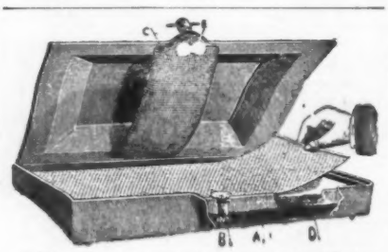

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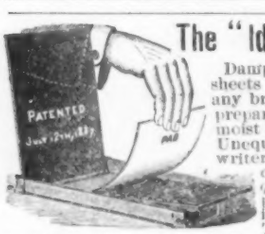

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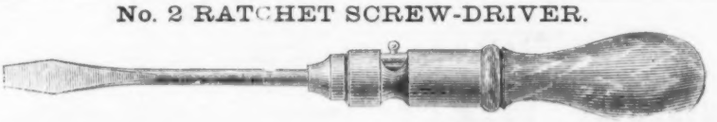

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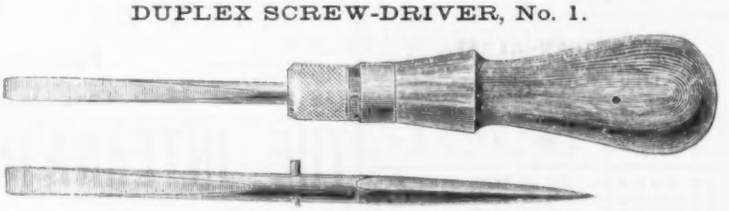

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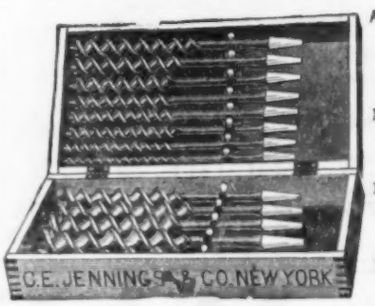

All our Auger Bits are made of Solid Cast Steel and warrante

This illustration represents our Auger Bits put up in Fancy Wood Boxes with rack to hold one Auger Bit of each size

No. 10 Set. C. E. Jennings & Co.'s Extension Lip Auger Bits: 13 Bits, 32½ Quarters, one each as follows: 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16-16ths of an inch, per set..... $5.00

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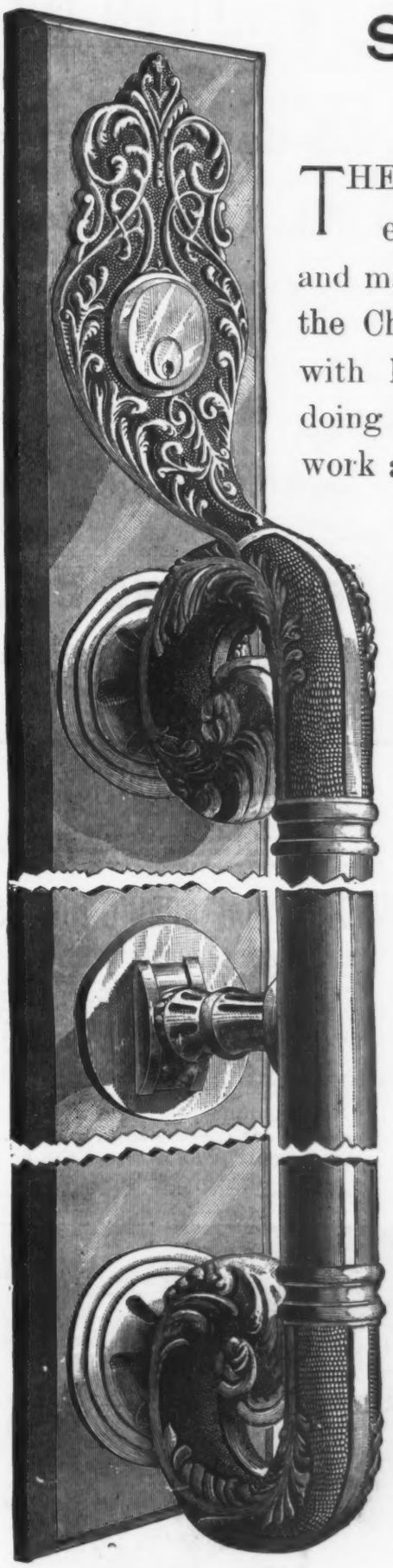

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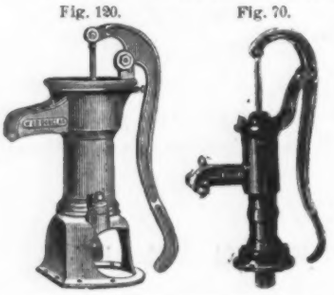
Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig. 120. Fig. 70.



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Capacity from 3,000 to 4,500 gallons per hour.

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Fig. 209. Fig. 381.

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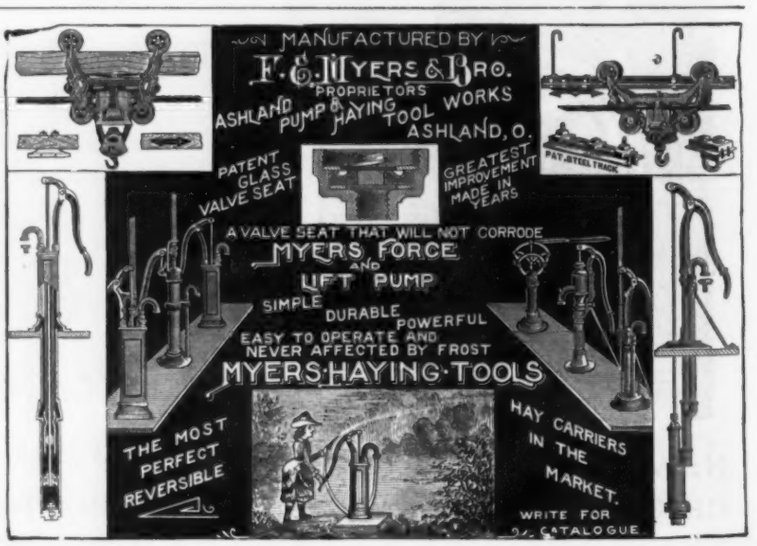

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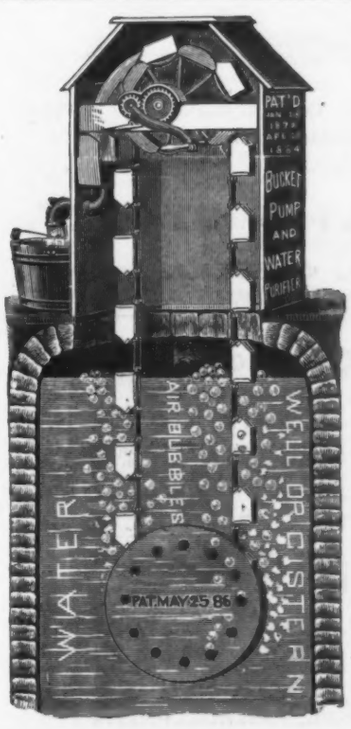

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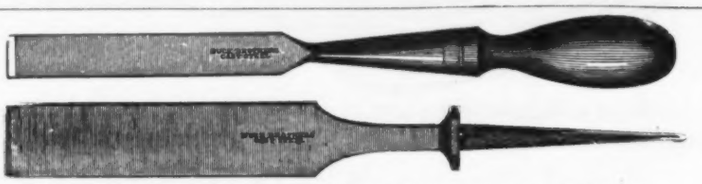

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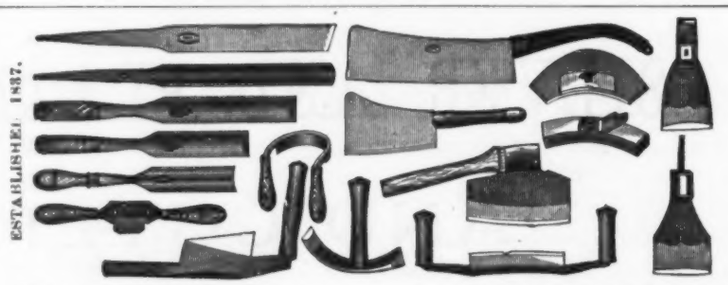

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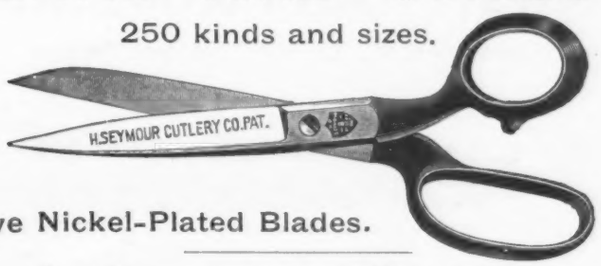

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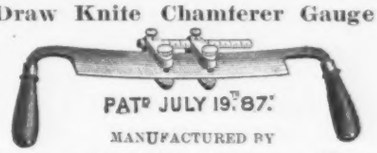

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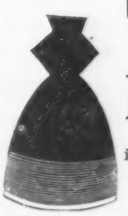

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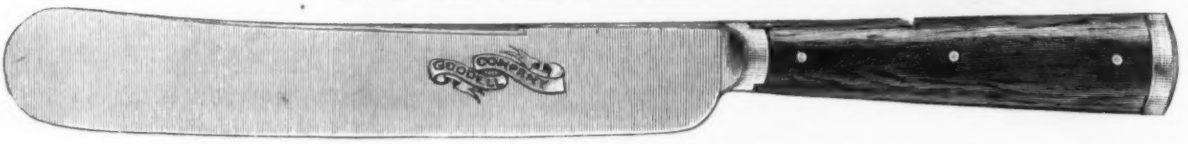

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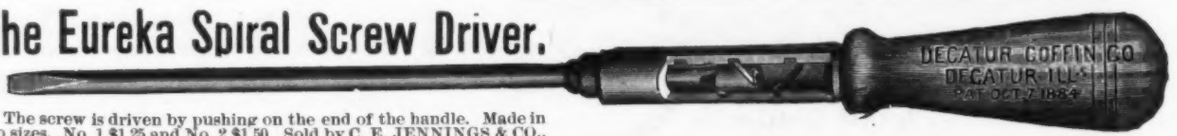

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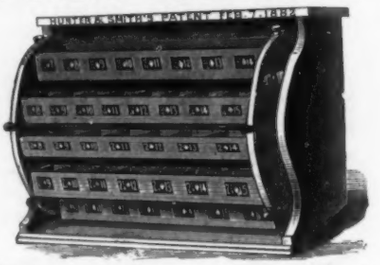

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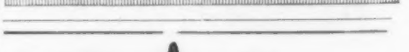

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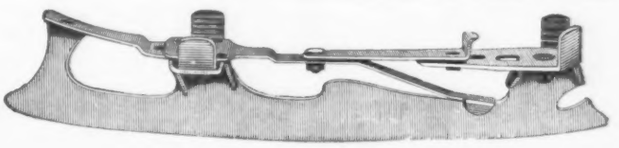

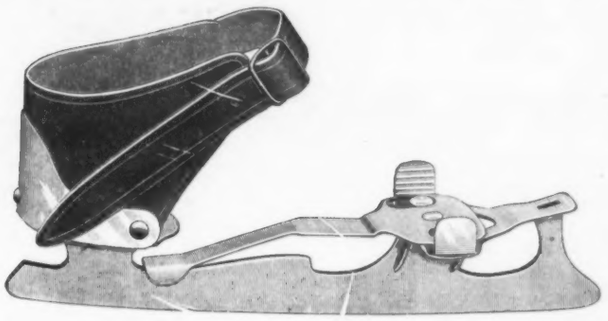

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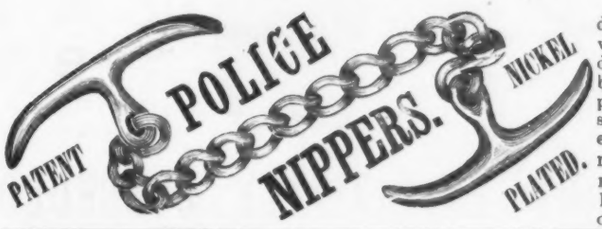

The attention of the Hardware Trade is called to the decision rendered in my favor in U. S. Circuit Court, So. Dist. of N. Y., Baldwin *vs* J. G. Conway Co., Limited, *et als.*, wherein I prosecuted the defendants for selling Police Chain Twisters or Nippers, manufactured by Bean, of Boston, which are proved to be an infringement on my patent. We therefore warn the Trade and public generally against selling or using such Police Chain Nippers or Twisters, or any others, except those made by Jos. Baldwin & Co., and the improved patterns made by us exclusively for Tower & Lyon, N. Y., who have always respected our claims, and by whom our Police Chain Twisters are kept for sale. All such are stamped with our name or initials. All others are infringements. **JOS. BALDWIN & CO., Newark, N.J.**

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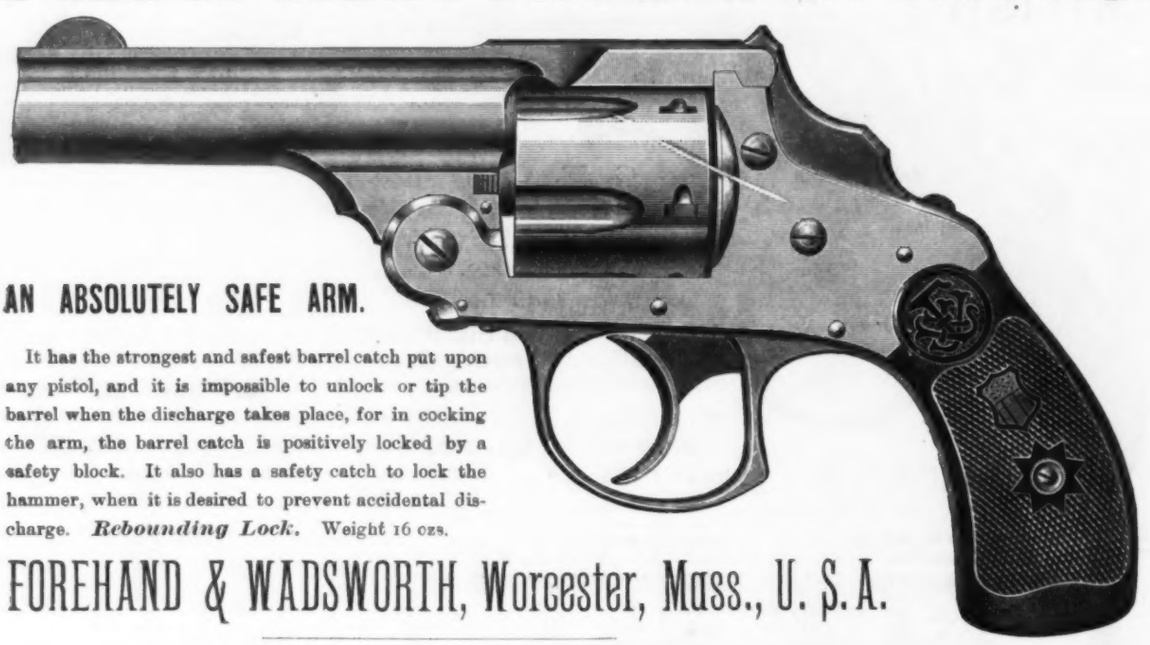

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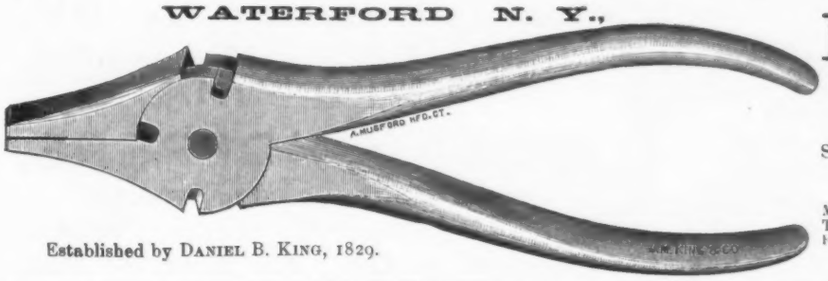

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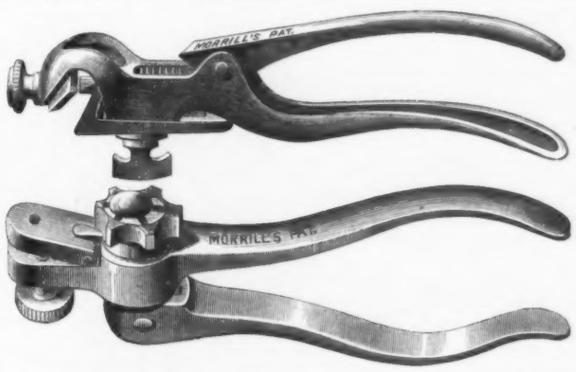

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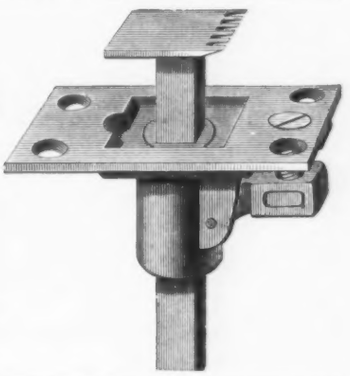

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Made of Best Scrap Iron!

THE BICK FACE AND END ALL IN ONE SOLID PIECE!

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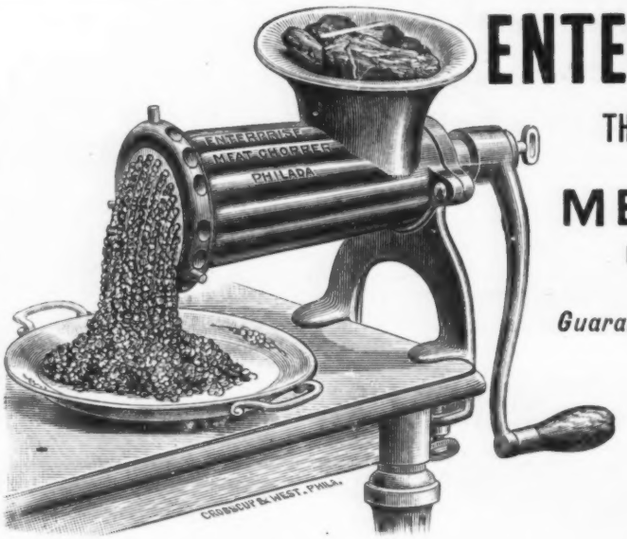

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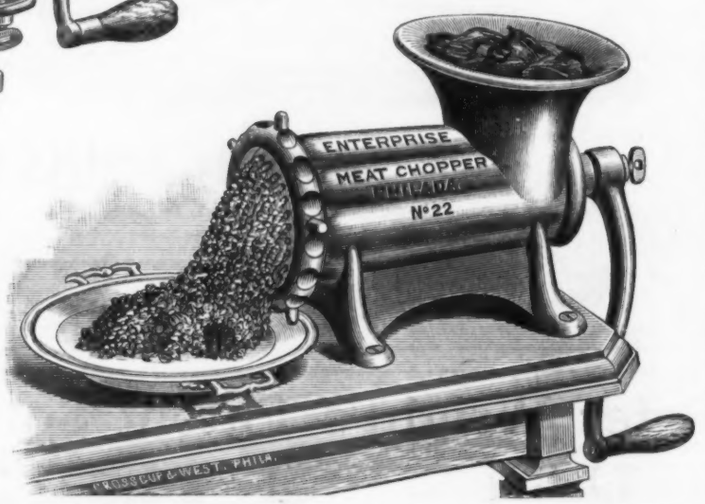

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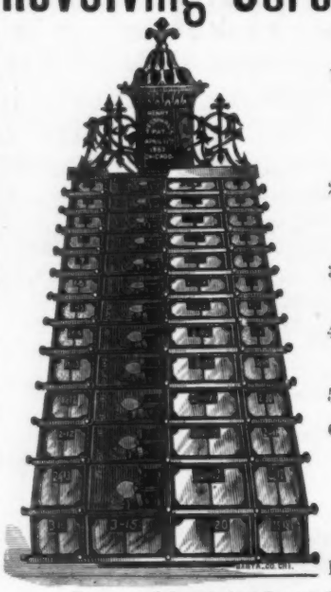

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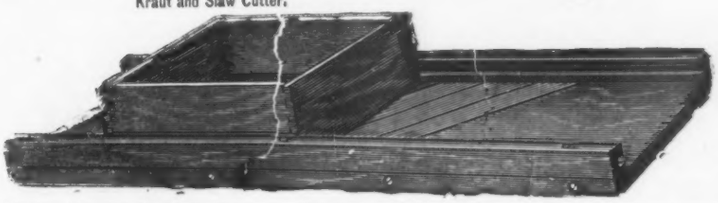

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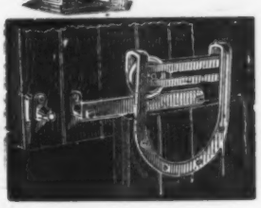

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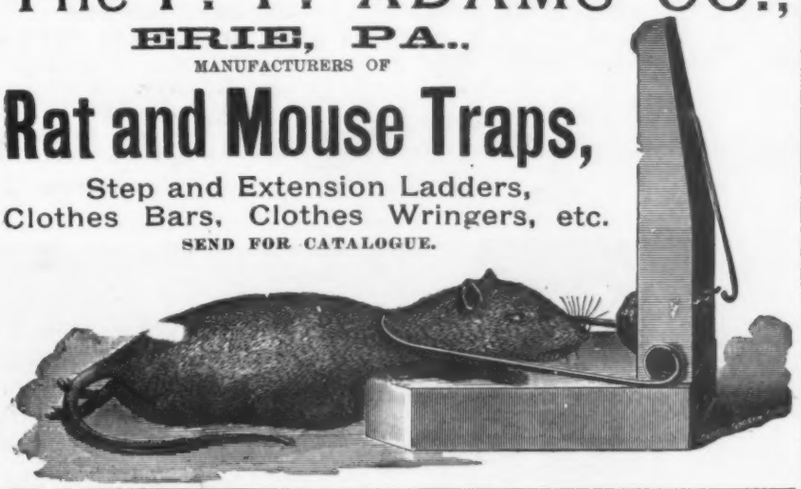

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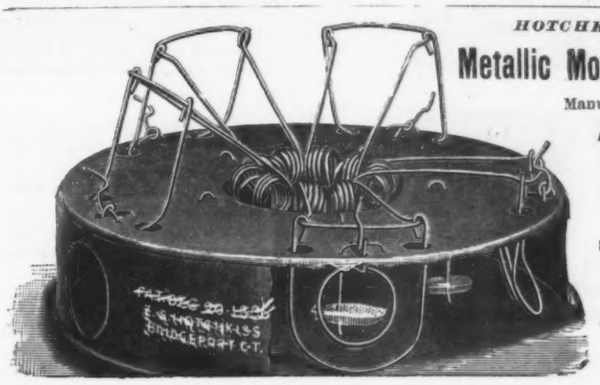

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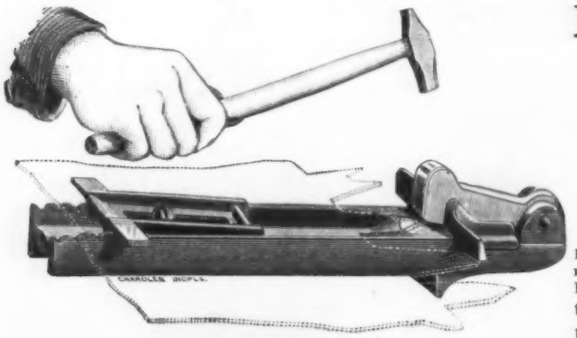

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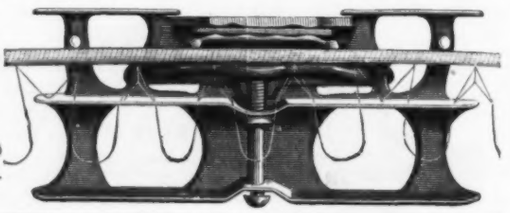

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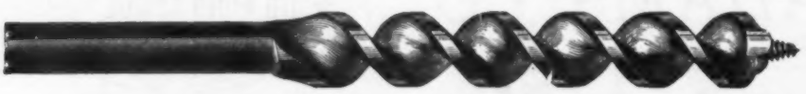

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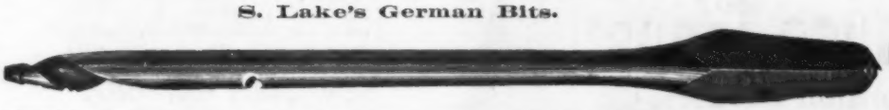

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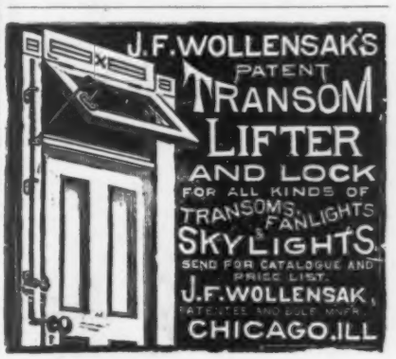

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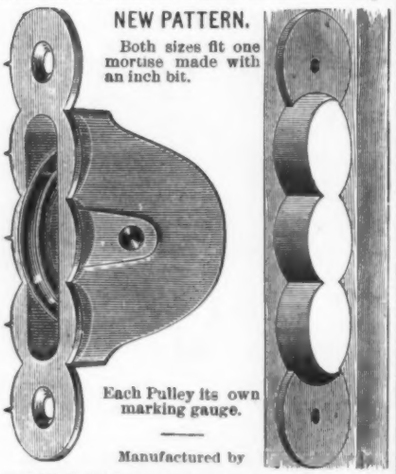

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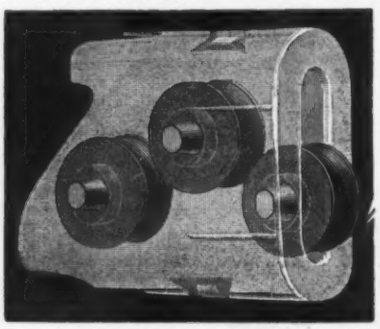

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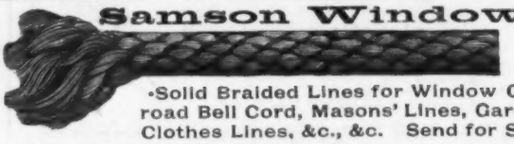

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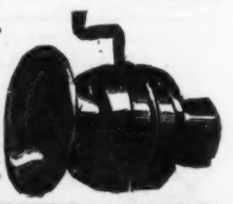

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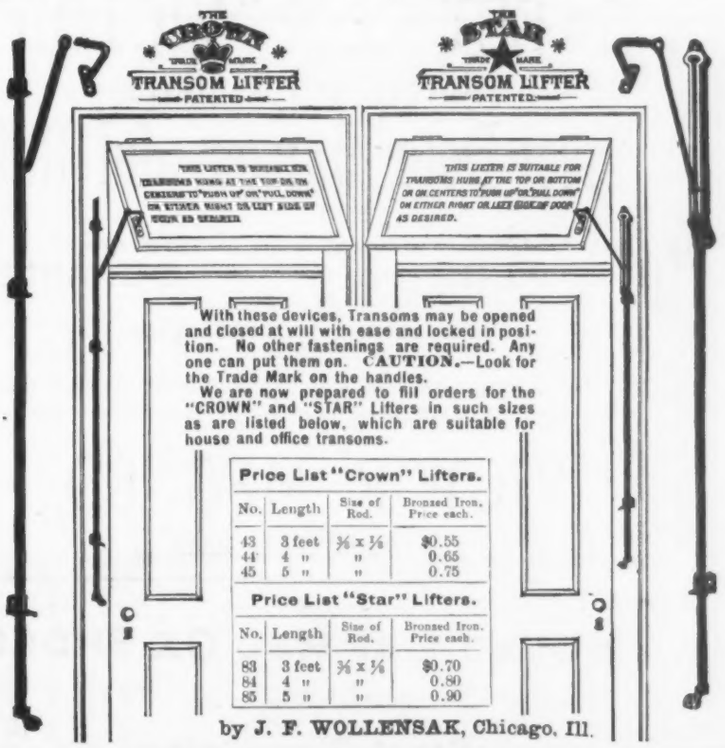

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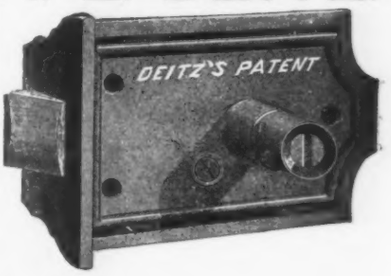

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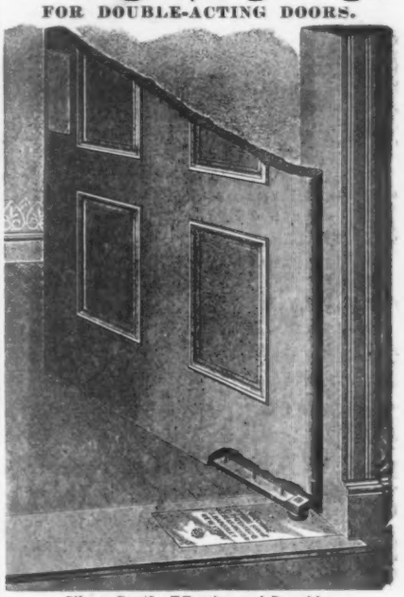

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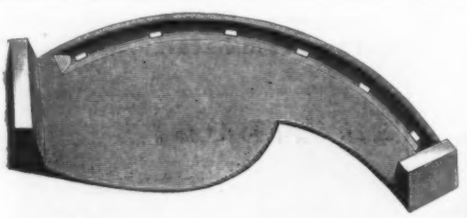

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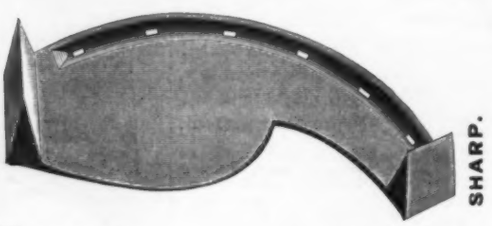

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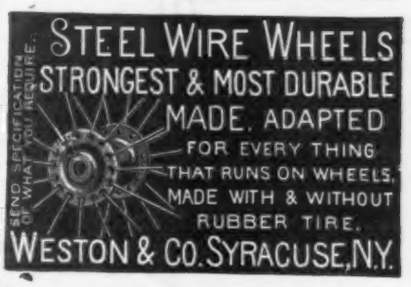

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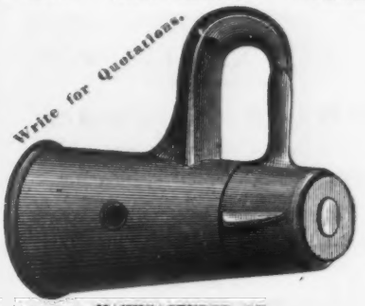

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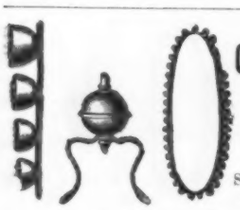

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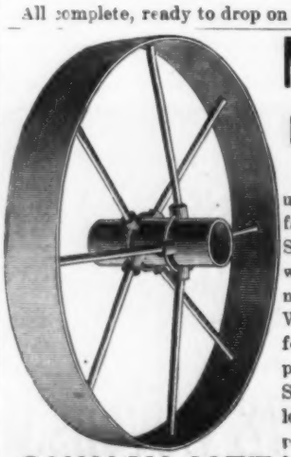

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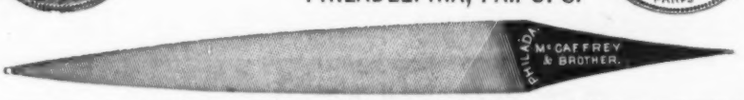

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are much *Stronger, Lighter, more Durable* and Cheaper than all others taking same size rope? No extra charge for our new Self-Lubricating Bushings in our Heavy Purchase and Wire Rope Blocks. Send for List.

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Our new Patent Can can be carried in the pocket and used without danger of soiling from the can or brush; all superfluous glue is removed on wiper. This style is made in three sizes, half pint, gill and half gill. Our regular cans are half pint, pint, quart, two quart and gallon. Bottles, two sizes as heretofore.

At the New Orleans Exposition (where a Gold Medal was awarded) a piece of Georgia pine butted, one inch square, on a Testing Machine, registered 1620 lbs. before parting.

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These Glues are used in the Smithsonian Institute, at Washington for all its works of mounting specimens, by the Government Arsenals and Department Buildings, by the Pullman Palace Car Co., Mason & Hamlin Organ and Piano Co., and by thousands of first-class manufacturers and mechanics throughout the world, for all kinds of fine work.

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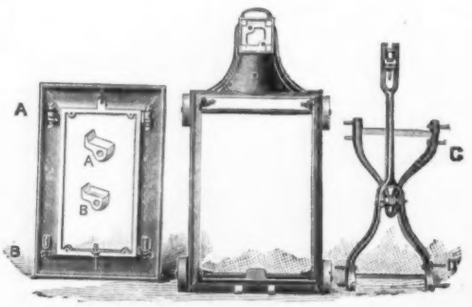
FORSYTH'S STANDARD PORTABLE SCALE.

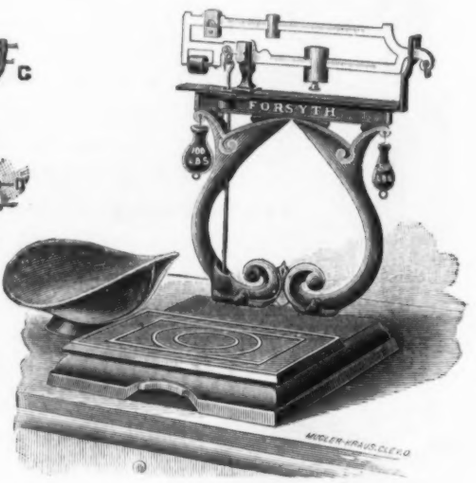
PATENT APPLIED FOR.



The four bearings A, B, rest on pivots C, D, holding platform in position and preventing shifting of platform on levers, without check chains, thereby lessening friction.

FORSYTH'S STANDARD COUNTER SCALE.

PATENT APPLIED FOR.



This Scale has same style of bearings as shown in cut of parts of Portable Scale.

—ESTABLISHED 1841.—

THE FORSYTH SCALE CO.

Manufacturers of R. R. Track, Depot, Coal, Rolling Mill, Dormant, Portable and Counter

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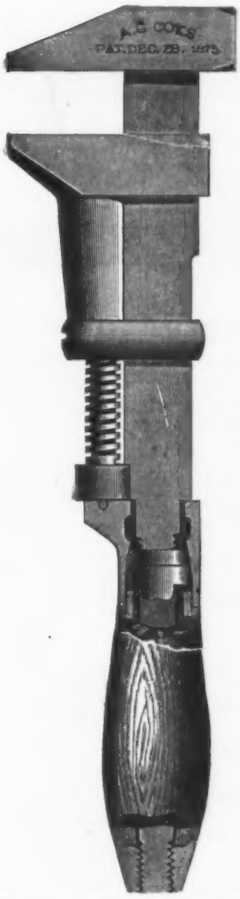

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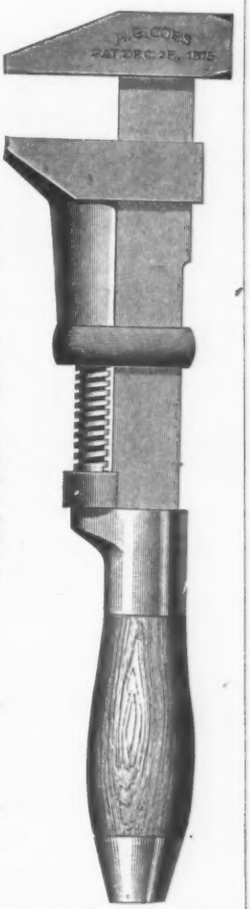

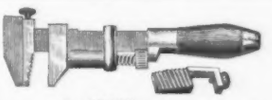

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The serrated jaws of the Wrench are interchangeable; that is, the same serrated plate may be used for either the stationary or sliding jaw, so that if one plate is broken another can be furnished adapted to either jaw without express designation. The slides, nuts and various parts are also interchangeable, thus easily repairing the Wrench at very small expense, and with as perfect practicability for further use as when the Wrench was new.

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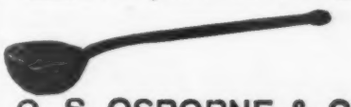

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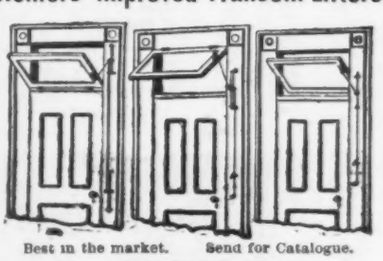

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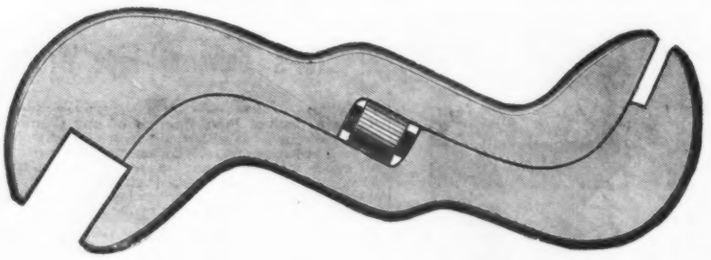

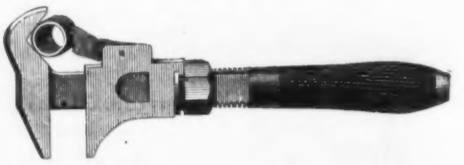

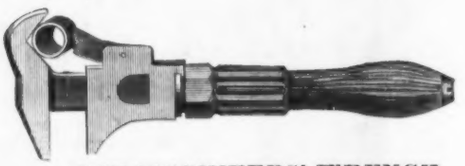

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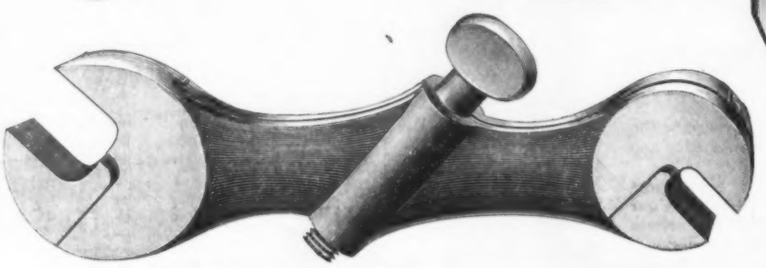

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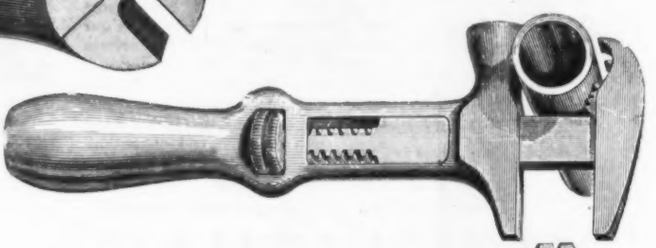

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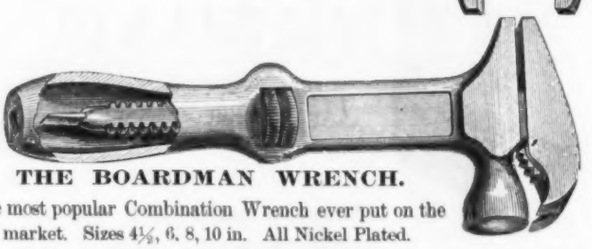

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KNIFE HANDLE

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Screw Wrenches

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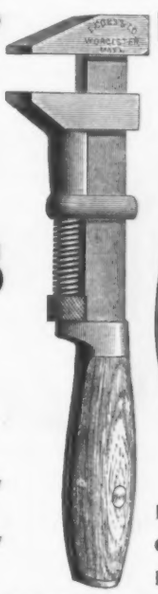

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☞ **Straight Bar, Extra Long Nut for Screw in Jaw.** ☜

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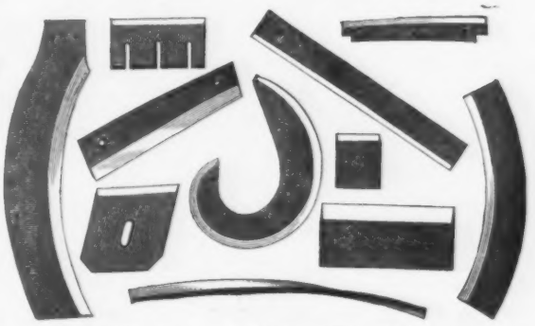

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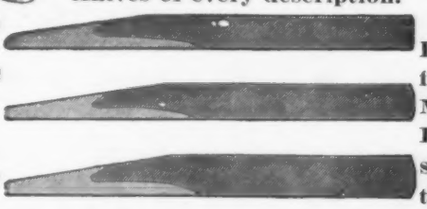

End view of Plated Stock for Dies, Lawn Mower Knives, Blades, &c., showing how the Steel is laid

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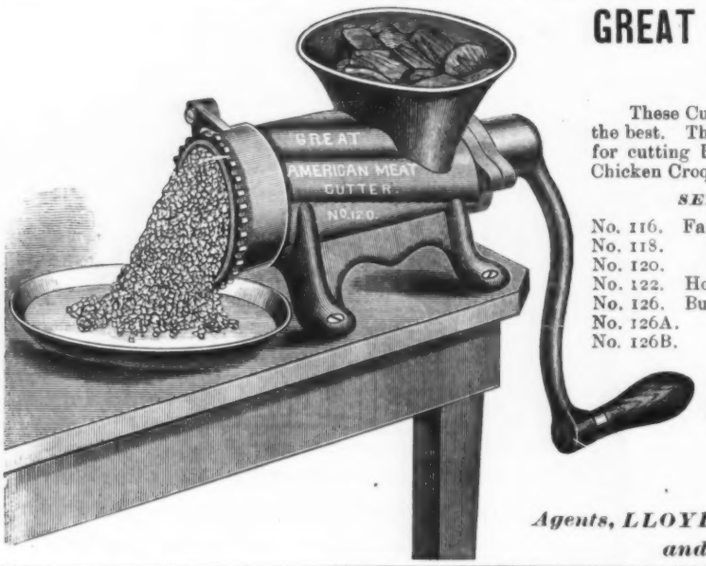

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HAVE NO EQUAL.

These Cutters are what the name INDICATES, and are pronounced the best. They have a double cutting operation, and are unequalled for cutting Breakfast Hash, Sausage Meat, Mince Meat, Scrapple, Chicken Croquettes, Hamburg Steak, &c.

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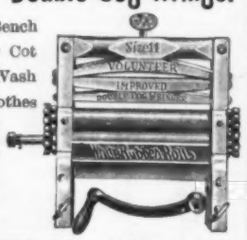

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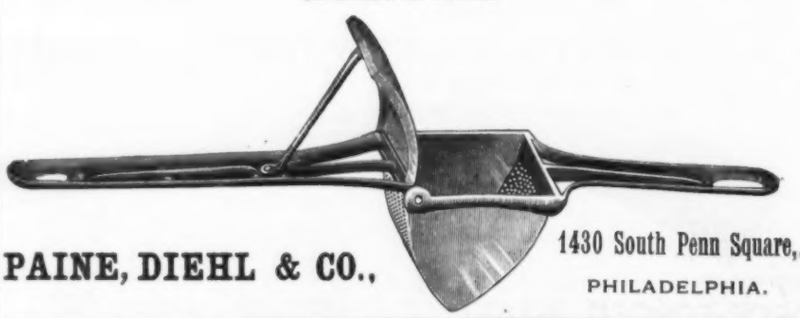

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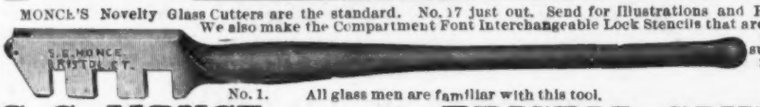

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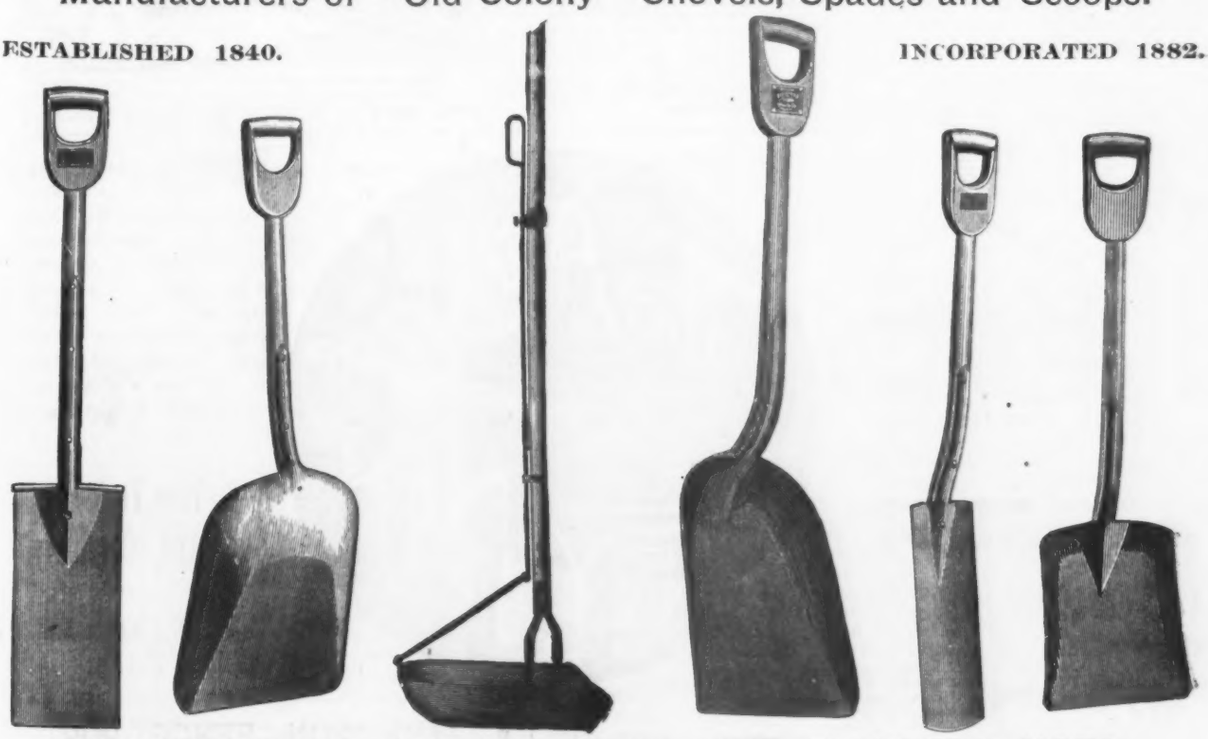

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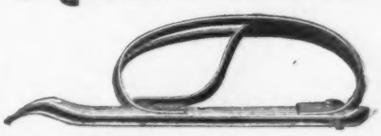

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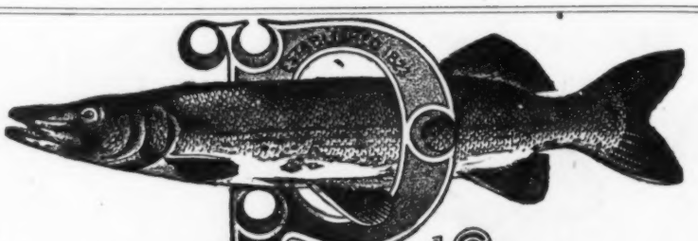

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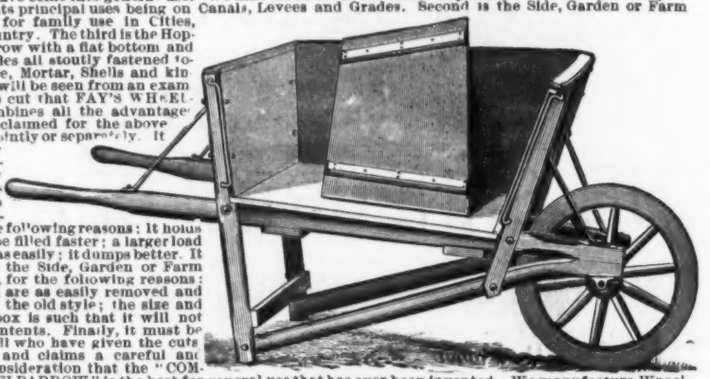

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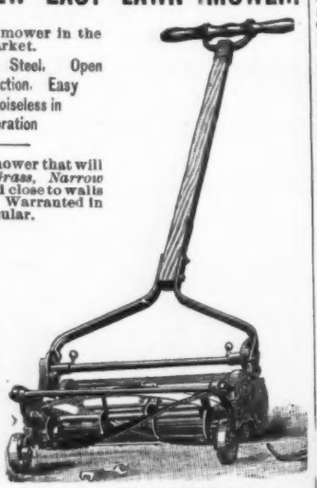

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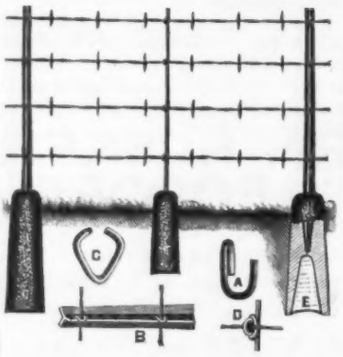

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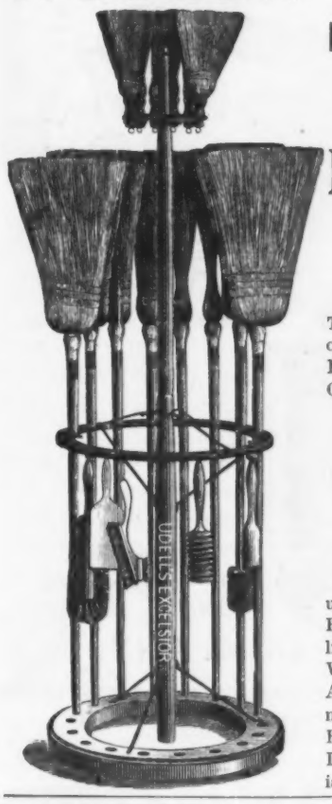

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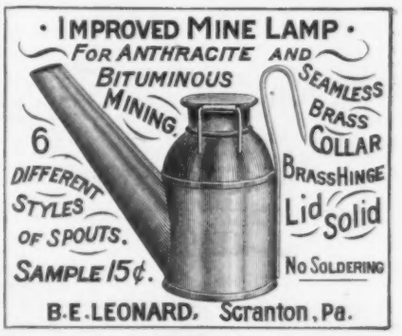

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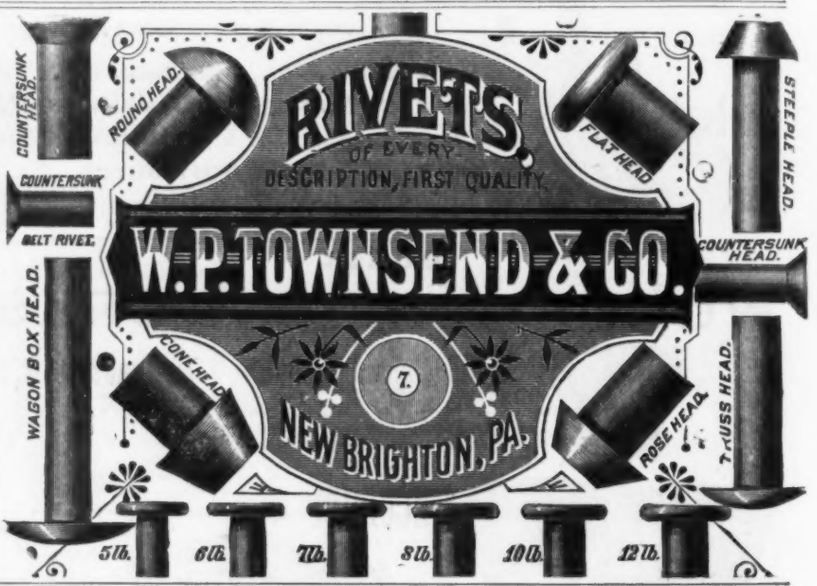

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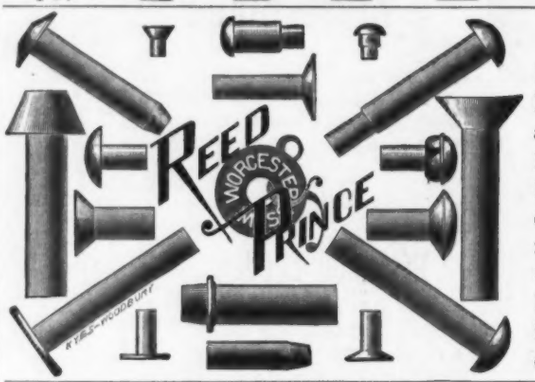

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Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
D. E. Whiton Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.
Woodruff, Walter W. & Sons, Mt. Carmel, Ct.

Clothes Dryers.
Empire Wringer Co., Auburn, N. Y

Coal.
Borden & Lovell, 70 West N. Y.
Nicolls, W. J. & Co., 35 Broadway, N. Y.
Pardee A. & Co., 111 Broadway, N. Y.

Coat and Hat Hooks.
Hamilton & Russell Mfg., Co., Worcester, Mass.

Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia.
Lane Bros., Poughkeepsie, N. Y.

Coke.
Connellsville Coke & Iron Co., Phila.
Schoonmaker J. M., Pittsburgh.

Commission Merchants, Iron, Steel, &c.
Howard Childs & Co., Pittsburgh.
Knapp Bros., 52 Fulton, N. Y.

Copper.
New Haven Copper Co., Pearl, N. Y.
Rome Brass and Copper Works, Rome, N. Y.

Cordage.
Elizabethport Steam Cordage Co., 46 South N. Y.
Samson Cordage Works, Boston, Mass.

Corrugated Iron.
Berlin Iron Bridge Co., E. Berlin, Ct.
Cincinnati Corrugating Co., Cinn., O.
Knisely & Miller Bros., Chicago, Ill
Lloyd Iron Roofing & Paint Co, Chicago, Ill,
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.
Sagendorph Iron Roofing and Corrugating Co., Cincinnati, Ohio.
Standard Iron Co., Bridgeport, Ohio.

Corrugated Tubing.
Wainwright Mfg. Co., Boston, Mass.

Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 8th, N. Y.
Shields & Brown Co., Chicago, Ill.

Cranes.
Sellers, Wm. & Co., Philadelphia, Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cutlery, *Importers of.*
Clatworthy F. & W., N. Y
Dame, Stoddard & Kendall, Boston, Mass.
Field, Alfred & Co., N. Y.
Gurney, F. B., 116 Chambers St., N. Y.

Cutlery, *Manufacturers of.*
Bingham, W. & Co., Cleveland, Ohio.
Goodell Co., Antrim, N. H.
Healy, C. J. & Co., 26 Warren, New York.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Dampers.
Shepard Hardware Co., Buffalo, N. Y.

Daubers.
Peabody & Parks, Troy, N. Y.

Door Checks.
Bardsley, J., 59 Elm St., New York.

Door Hangers, House and Barn.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. Co., Chicago, Ill.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Door Knobs.
Boston Knob Co., Boston, Mass.

Door Springs.
Paine, A. W., Peaboy, Mass.

Drilling Machines.
Dallett Thos. H. & Co., Philadelphia
Dwight Slate Machine Co., Hartford Conn.
Herrick & Cowell, New Haven, Conn.
Illinois Iron & Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Sigourney Tool Co., Hartford, Conn.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Universal Radial Drill Co., Cinn.

Drills, Upright.
Currier & Snyder, Worcester, Mass.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Belden, R. A. & Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Ct.
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Scranton Forging Co., Scranton, Pa.
Williams, J. H. & Co., Brooklyn, N. Y.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Beecher & Peck, New Haven, Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Edward Storm Spring Co. Poughkeepsie, N. Y.

Edge Tools, *Makers of.*
White, L. & I. J., Buffalo, N. Y.

Electrical Supplies.
Wollensak, J. F., Chicago, Ill.

Electric Bells.
Ostrander, W. R. & Co., New York.

Electric Lighting.
Ball Electric Light Co., 18 Cortlandt St., N. Y.
The Brush Electric Co., Cleveland, O.
Waterhouse Electric & Mfg. Co. Hartford, Conn.

Electric Dynamo Machines.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct

Elevator Buckets.
Clark, W. J. & Co., Salem, O.

Elevators, *Makers of.*
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Stokes & Parrish Elevator Co., Philadelphia, Pa.

Emery Paper, Cloth, &c.
Walpole Emery Mills, S. Walpole, Mass

Emery Wheels.
New York Belting and Packing Co. 15 Park Row, N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Springfield Glue and Emery Wheel Co., Springfield, Mass.
Sterling Emery Wheel Co., 17 Dey Street, N. Y
The Tanite Co., Stroudburg, Pa.
Waltham Emery Wheel Co. Waltham, Mass.

Engineering Implements & Supplies.
Queen & Co., Philadelphia, Pa.

Engineers.
Gordon Strobel & Laureau, Phila.

Engineers and Contractors.
Laughlin, A. & Co., Cleveland, O.
Lean & Blair, Pittsburgh, Pa.
McClure & Shuler, Pittsburgh, Pa.
McKenna, Ryan & Sons, Pittsburgh.
Roberts, Frank C., Philadelphia, Pa
M. V. Smith, Pittsburgh, Pa.
Stein & Schwarz, Philadelphia, Pa
Swindell Construction Co. Pittsburgh, Pa.
Walte & Van Harlingen, Phila. Pa.

Engines, Gas.
Clerk Gas Engine Co., Phila., Pa.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam. *Makers of.*
Climax Mfg. Co., Corry, Pa.
Farquhar, A. B. & Son, York, Pa.
Harrisburg Car Mfg. Co., Harrisburg Pa.
Leffel Jas. & Co., Springfield, O.
Newell Universal Mill Co., 10 Barclay N. Y.
Payne B. W. & Sons, 49 Dey, N. Y
Russell & Co., Massillon, Ohio
N. Y. Safety Steam Power Co., 30 Cortlandt St., N. Y.
Norwalk Iron Works Co., S. Norwalk
Todd Wm. & Co., Youngstown, O.
Valley Iron Works, Williamsport, Pa
Wetherill Robt. & Co., Chester, Pa.

Engravers and Printers.
Gies & Co., Buffalo, N. Y.
Kyes & Woodbury, Worcester, Mass

Exhaust Pipe Condensing Head.
Aller, Amos, 109 Liberty, N. Y

Expansion Bolts.
Boone, W. C. & Son, Brooklyn, N. Y.

Faucets, Self-Measuring.
Enterprise Mfg. Co., Philada., Pa.

Faucets. *Makers of.*
John Sommer's Son, Newark, N. J.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn
Warren, Webster & Co., Phila., Pa.

Fence Posts.
Long, C. S., Aurora, Ills.

Fences, Wrought Iron.
Champion Iron Fence Co., Kenton, O.

Files, *Importers of.*
Montgomery & Co., 105 Fulton, N. Y.
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of.*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
Jetter Mfg. Co., Buffalo, N. Y.
McCaffrey & Bro., Philadelphia.
Nicholson File Co., Providence, R. I.
Paul Chas. B., Williamsburg, N. Y.

Fire Brick, *Makers of.*
Birmingham Fire Brick Works, Birmingham, Ala.
Borgner & O'Brien, Philadelphia, Pa
Gardner James, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer H. & Son, 420 E. 23d, N. Y.
Newton & Co., Albany, N. Y.
Ostrander James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine M. D. & Bro., Woodbridge,

(See Alphabetical Index, Page 90.)

Fish Hooks.
Alford & Berkele Co , 77 Chambers St., N. Y.

Foreign Iron Merchants.
Jno G. Rollins, London England.

Forges, Portable, &c.
Brown & Patterson Brooklyn, N. Y.
Bullock T. H., Cleveland O.
Buffalo Forge Co Buffalo, N Y.
Champion Blower and Forge Co. Lancaster Pa
Sturtevant B. F., Boston, Mass.

Forgings, Iron and Steel.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Miller Forge Co., Pittsburgh, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson J. W & Co., Phila.
S. Obermayer Foundry Supply Mfg Co., Cincinnati, O.

Foundry Riddles.
Estey W S., 71 Fulton, N. Y.

Foundry Supplies.
Detroit Foundry Equipment Co., Detroit Mich
S. Obermayer, Foundry Supply Mfg Co., Cincinnati, O.
Paxson J. W. & Co., Philadelphia.

Friction Clutches.
Hill Clutch Works, Cleveland, O.
Moore & White Co., Philadelphia, Pa.

Friction Pulleys.
Sandy Hill Iron and Brass Works, Sandy Hill, N. Y.

Furnace Hoists.
Stokes & Parrish Machine Co., Phila.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila, Pa.

Gears.
Grant, Geo. B., Boston, Mass.

Gear Cutters.
Grant, Geo. B., Boston, Mass.
D. S. Whiton Mach. Co., New London Conn

Glass Cutters.
Andress, Thos. J., Philadelphia, Pa.
Monce, S. G., Bristol Conn.

Glue.
Le Page Liquid Glue and Cement Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.
Upton, Geo., Boston, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hammers, Steam.
Bradley & Co., Syracuse, N. Y.

Hand Force Pumps.
Union Mfg. Co., 103 Chambers, N. Y.

Hardware Comm'n Merchants.
Doscher, Martin, 83 Chambers, N. Y.
Field Alfred & Co., N. Y.
Jacobus, W. H. & Co., N. Y.

Hardware Manufacturers.
Brand Mfg. Co., New Britain, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Vaughan & Bushnell Mfg. Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H., 115 Chambers, N. Y.

Hardware Shelf Boxes.
Green S. H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.
Sharp H. H. & Co., Philadelphia, Pa.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit Brace Co., Buffalo, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Greene, Tweed & Co., N. Y.
Paine, Diehl & Co., Philadelphia, Pa.
Rex A. C. & Co., Philadelphia, Pa
Saxton E. R., Buffalo, N. Y.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Carriers.
Myers F. E. & Bro., Ashland, O.

Hay Cutter.
Wayne Works, Richmond, Ind.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hinges.
Union Mfg. Co. 103 Chambers, N. Y.

Hoisting Machines.
Box Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington E. Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
McCoy & Sanders, 26 Warren, N. Y.
Morse Williams & Co. Phila.
Sellers Wm. & Co., Phila. and N. Y.
Teal Hoist Co., Philadelphia.

Hollow-Ware.
N. Y. Stamping Co., Brooklyn, N. Y.

Horse Nails, *Makers of.*
Essex Horse Nail Co., Essex, N Y.
National Horse Nail Co. Vergennes.

Horse Shoes, *Makers of*
Phœnix Horse Shoe Co., Poughkeepsie, N. Y
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa.

Husking Pins.
Blair, E. Bucyrus, O.

Hydrants, &c.
McLean John, N. Y.

Hydraulic Jacks.
Dudgeon Richard, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.

Indurated Fibre Ware
Union Indurated Fibre Co., N. Y

Injectors.
Aller, Amos, 109 Liberty, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox Justice, Jr., & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Hoffman J. W. & Co., Philadelphia.
Lewis Henry & Co. Philadelphia.
Williams, N. B., Chicago, Ill.

Iron, *Manufacturers of.*
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Long & Co., Pittsburgh, Pa.
Mahoning Valley Iron Co., Youngstown, O.
Montour Iron & Steel Co., Danville.
Moorhead-McCleane Co., Pittsburgh, Pa
Passaic Rolling Mill Co., Paterson
Phœn'x Iron Co., 410 Walnut, Phila.
Pottstown Iron Co., Pottstown, Pa.
Stuart & McLean, Pittsburgh, Pa.
Troy Steel and Iron Co., Troy, N. Y.
Whitney A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Page, Newell & Co., Boston, Mass.
Philp C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Etting Edward J., Philadelphia, Pa.
Walbaum W. H. & Co., Philadelphia Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia.
Mohr J. J., 430 Walnut, Phila.
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co., Philadelphia, Pa.
Gill, Thompson C., & Co., Phila., Pa.
Hart, Wm. R. & Co., Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson E. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co., Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 Kilby, Boston.
Moffat, Frank D., 100 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Pettis & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson E. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig, *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet, *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 23 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O.

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Mill-rs Falls Co., 93 Reade, N. Y.
Pryibil P., 407 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co. Newburg N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Kent, Wood & Co. Springfield, O.
Seneca Falls Lawn Mower Co., Seneca Falls, N. Y.

Lawn Sprinklers.
McGowan, John H. & Co., Cincinnati, O.

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. F., Athol, Mass.
Tower & Lyon, 95 Chambers St. N. Y.

Locks and Knobs, *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Smith & Kane Mfg. Co., Bridgeport.
Quackenbush, Abram, New York.
Yale & Towne Mfg. Co., Stamford

Machinery.
Adt John & Son, New Haven, Conn.
Barnes W. F. & John, Rockford, Ill
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Brettell & Wilson, Rochester, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin 12 Broadway, N. Y.
Bullard E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank D. B. Providence, R. I.
Deering Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray, R. J. & Co., 131st & 4th Ave., N. Y
Gray's Ferry F'd'y & Boiler Co., Phila. Pa.
Harrington, E. Son & Co., Phila., Pa.
Hendey Machine Co., Torrington, Ct.
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge, Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pryibil P., 407 W. 40th, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers Wm. & Co., Phila.
Snell, Henry L., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. Fd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co. Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. & Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Meat Choppers.
Enterprise Mfg. Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N. Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mine Lamps.
Hunt & Connell, Scranton, Pa
Leonard, B. K., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ills.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Thomas, Dago J., 1 Broadway, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co., Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co., 139 Green'ch, N. Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Wash'ton N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y.

Norway Shapes, *Rollers of.*
Naylor & Co., 99, John, N. Y.
Rowland William & Harvey, Frankford Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Pt. Chester.
Shelton & Co., Birmingham, Conn.
Wilson J. Frost, Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn.

Oil Stones.
A. F. Pike Mfg. Co., Pike Station, N. H
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardner, Mass.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt Carmel, Conn.

Packing.
R. H. Bagott, 116 John St., N. Y.
Chalmers-Spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Fraim, E. T., Lancaster, Pa.

Pails.
Brower, John, New York.

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton
Stocking E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Pig Iron.
Chamberlain, Wheeler & Co., Columbus Ohio.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, *Makers of.*
Donaldson Iron Co. Emaus, Pa.
Fox John, 160 Broadway, N. Y.
Morris, Tasker & Co., 224 South Third street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co. St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Police Equipments.
Baldwin, Jos. & Co., Newark, N. J.
French, S. A., 400 Broome St., N. Y.

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N. Y

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Powder.
King's Great Western Powder Co., Cincinnati, Ohio.
Laflin & Rand Powder Co., 29 Murray St., N. Y.

Power Hammers.
Beiden R. A. & Co., New Haven, Conn.
Bradley & Co., Syracuse, N. Y.
Dienelt & Eisenhardt, Philadelphia.
Duncan, W. P. & Co., Bellafonte, Pa.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Power Transmission Machinery.
Hill Clutch Works, Cleveland, O.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Perracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Presses, Power, *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn.

Pulleys.
Edinburg Pulley Co., Edinburg, Md.

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford Conn.

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Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis. Ind.
Gould's Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co ,Cleveland,O
Keystone Engine and Machine Wks Phila., Pa
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Easthampton Mass.

Pumps, Force.
Myers P. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y

Pumps, *Makers of.*
Clark Bros , Belmont, N. Y.
Columbiana Pump & Machine Co.
Douglas W. & B., Middletown, Conn.
Gould's Mfg. Co., 60 Barclay, N. Y.
Silver & Deming Mfg.Co., Salem,O.
Union Mfg Co. 103 Chambers N. Y.
Water Elevator & Purifier Co., Cincinnati, O.

Punches.
Fulton Iron and Engine Works, Detroit, Mich.

Punching and Shearing Presses.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown Pa.
Joliet Steel Co., 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y.
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Cowles Mfg. Co., Bridgeport, Ct.

Razors.
J. R. Torrey Razor Co., Worcester Mass.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia,

Refrigerator Trimmings.
Brainerd & Co., 97 Chambers St., N. Y.

Reloading Tools.
Ideal Mfg. Co , New Haven, Conn.

Rivets.
Disosway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rolling Mill Machinery.
Lloyd-Booth Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co., Pittsburgh, Pa
Lloyd-Booth Co., Youngstown, Ohio.
Seaman, Sleeth & Black, Pittsburgh.

Rope Snaps.
Pratt & Letchworth, Buffalo, N. Y.

Rules, *Manufacturers of.*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Balances.
Caldwell, W. H., Rochester, N. Y.
R. B. Hugunin Mfg. Co., Hartford, Conn.

Sash Cords and Chains.
Morton Thos., 65 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Claflin Mfg. Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers St., New York.
Ives H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co , Troy, N. Y.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury, Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Morrill, Chas., 79 Chambers St., N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons. Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Riehlé Bros., Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Decatur Coffin Co., Decatur, Ill.
Ehrich Hdw. Mfg. Co., Plantsville, Conn.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S., 205 Quarry, Philadelphia.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls, N. Y
King, O'Connor & Co., Baltimore, Md.

Scythe Stones and Whetstones
A. F. Pike Mfg. Co , Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 27 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Scholhorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.
Sanford Fork and Tool Co., Terre Haute, Ind.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown, Conn.

Skates.
Dame, Stoddard & Kendall, Boston, Mass.

Smelting Works.
Reeves Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen, 105 Walker, N. Y.

Spelter.
Manning & Squier, 111 Liberty, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Ma
Sabin Machine Co., Montpelier, Vt
Titus & Babcock, Rochester, N. Y.

Spring Hinges.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Strops.
Torrey J. R. & Co., Worcester, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon Richard, 24 Columbia, N. Y.
Duncan W. P. & Co., Bellefonte Pa.

Steam Heating.
Broomell & Sanks, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co.,Cleveland, O,
McGowan Joan R. &Co., Cincinnati.
Norwalk Iron Wks.Co., 30, Norwalk.

Steam Traps.
Aller Amos, 109 Liberty, N. Y.

Steel Figures and Alphabets.
Stutaman J. M., 131 William, N. Y.

Steel Importers.
Abbott Jere & Co., N.Y. & Boston.
Hobson Francis & Son, 97 John, N. Y.
Jessop Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West, N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones H. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N.Y.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller, Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss F. W., 83 John, N. Y.
Naylor & Co., 99 John, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N.Y.
Wardlow S. & C., Sheffield, Eng
Wetherell Bros., 115 Liberty, N.Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beavor-Webb, J., 145 Broadway.
Hicks & Dickey, Philadelphia, Pa.

Steel Nails
Bellaire Nail Works, Bellaire, O. to.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs. *Manufacturers.*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N.Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O,
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng. 91 John, N. Y.
Leng John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops
J. R. Torrey & Co., Worcester, Mass.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehlé Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burke P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
American Tool Co., West Houston St., N. Y.
Atkins E. C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock O. W., Springfield, Mass.
Ehrich Hdw. Mt. Co., Plantsville, Ct.
Fulton Iron & Eng. Wks. Detroit, Mich.
Hoague, J. B & Co., Chicopee, Mass.
Humphrey Tool Co., Warren, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Torches.
Standard Lighting Co., Cleveland, O.

Transom Lifters.
Reiher F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Riehle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co., 19 Murray, N. Y.

Tubes, Steel.
Leng John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Leng John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 83 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers.
Lanman, E. B., Columbus, O.
Mason Iron Co., Philadelphia, Pa.

Washing Machines.
Wayne, Anthony, Mfg.Co., Fort Wayne Ind.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York.

Weather Strips.
Bosley, D. W. & Co., Chicago.

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

Wheelbarrows.
Bryan Mfg. Co., Bryan, O.
Fogsley & Chapman, 8 Liberty, N Y

Wheels.
Quincy Metal Wheel Co., Quincy, Ills.
I. A. Weston & Co., Syracuse, N. Y

Whiffletree Hooks,
Head's Iron Foundry, Utica, N. Y.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.

Window Cord, *Makers of*
Samson Cordage Works, Boston Mass.

Window Screens.
Darby, Edw. & Sons, Philada., Pa
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren St., N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd, Pittsburgh, Pa
Howard & Morse, 45 Fulton, N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co., Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass.
Darby Edward & Sons, Philadelphia.
Estey W. S., 71 Fulton, N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse, 45 Fulton, N. Y.

Wire Goods, *Manufacturers of*
Brooks M. S. & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville
Howard & Morse, 45 Fulton, N. Y.
Knapp Bros., New York.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
Adt John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Sweetser, W. A., Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Birmingham Wire Nail Co., Birmingham, Ct.
Cammet Iron & Steel Co., Chicago, Ills.
Dunbar, Hobart & Co., 39 Warren, N. Y
Field A. & Sons, Taunton, Mass.
Hartman Steel Co. Ltd., Pittsburgh Pa.
Phillips E. & Sons, South Hanover.
Philips, Townsend & Co., Phil., Pa
Pittsburgh Wire Nail Co., Pittsburgh, Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
Wire Goods Co., Worcester.
Trufant W. E., Whitman, Mass.
Whitney A. R. & Co., New York City.

Wire Rods, Steel.
Whitney A. R. & Co., N. Y.

Wire Rope, Iron and Steel. *Makers.*
Broderick & Bascom, St. Louis, Mo.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis, Mo.
Upson, Walton & Co., Cleveland, O.
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
Udell Woodenware Works, Indianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Fall N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co Springfield, Mass.
Billings Spencer & Co., Hartford Conn.
Coes Wrench Co , Worcester, Mass.
Tower & Lyon, 95 Chambers, N. Y
Utility Wrench Co , N. Y.
Williams, J. H., Brooklyn, N. Y.

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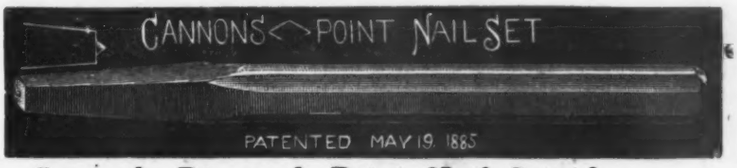

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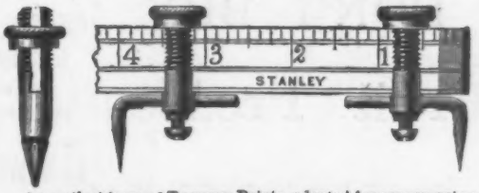

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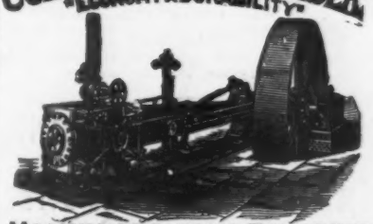

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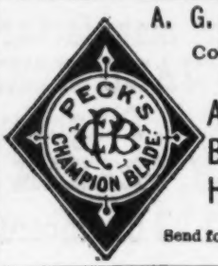

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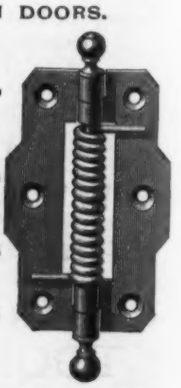

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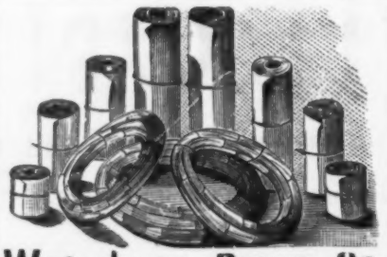

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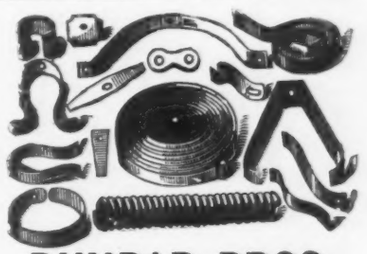

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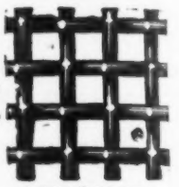

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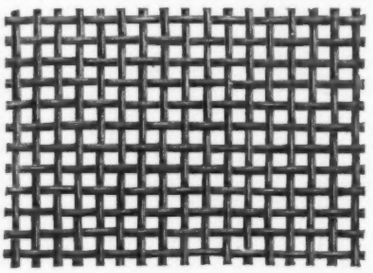

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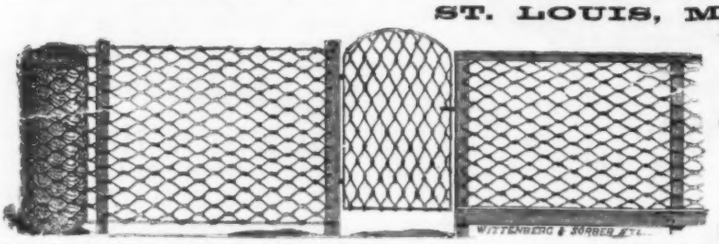

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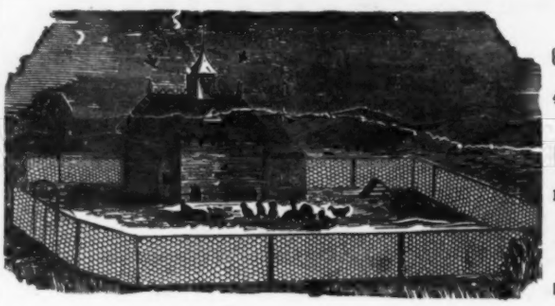

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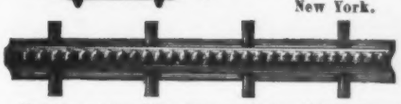

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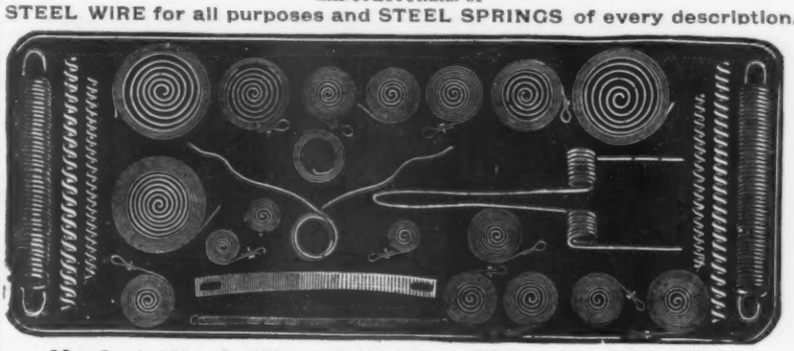

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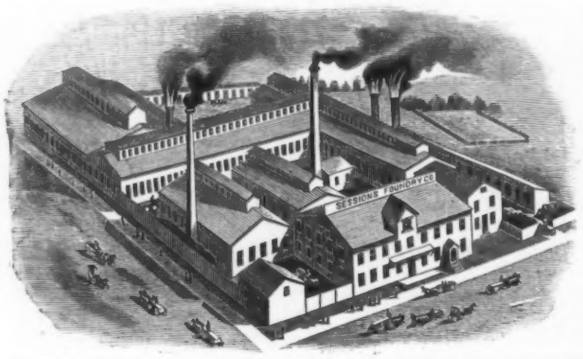

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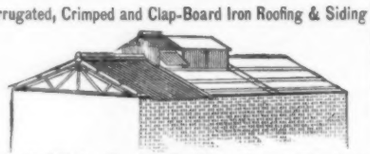

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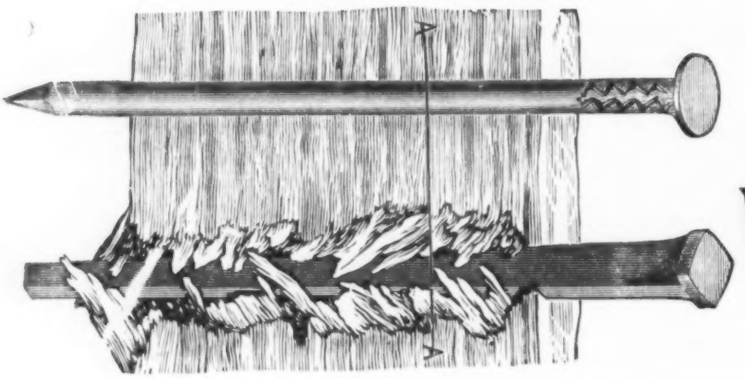

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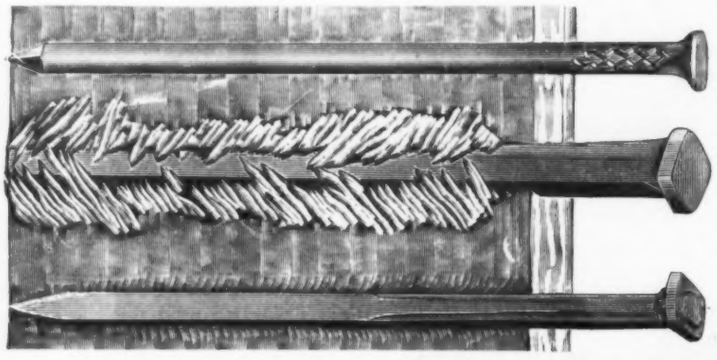

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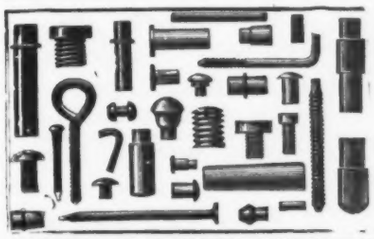

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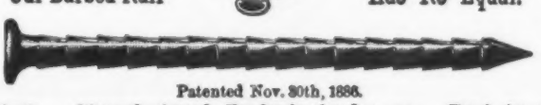

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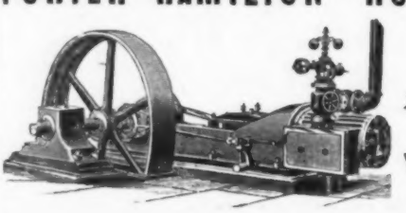

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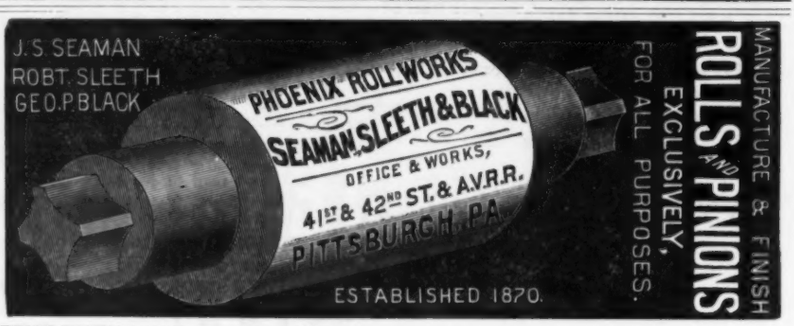

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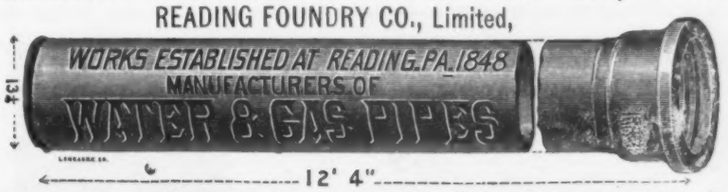

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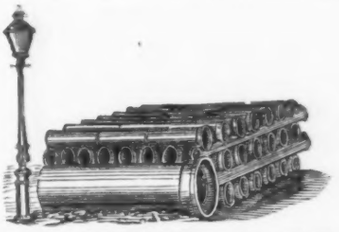

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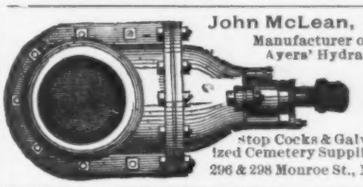

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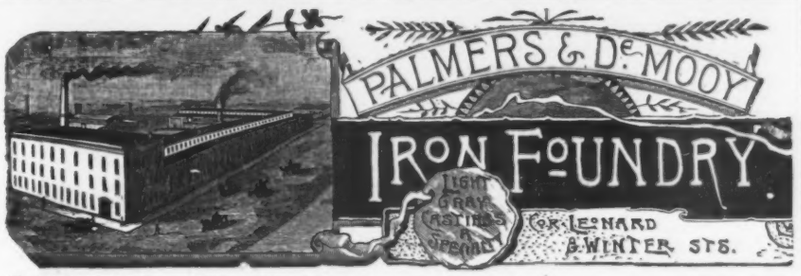

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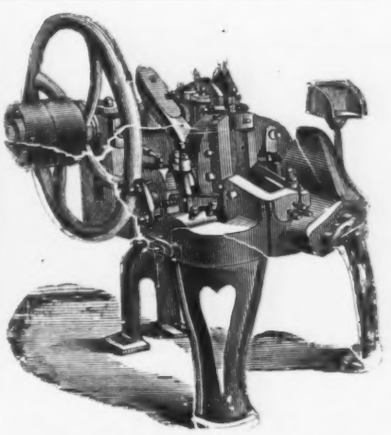

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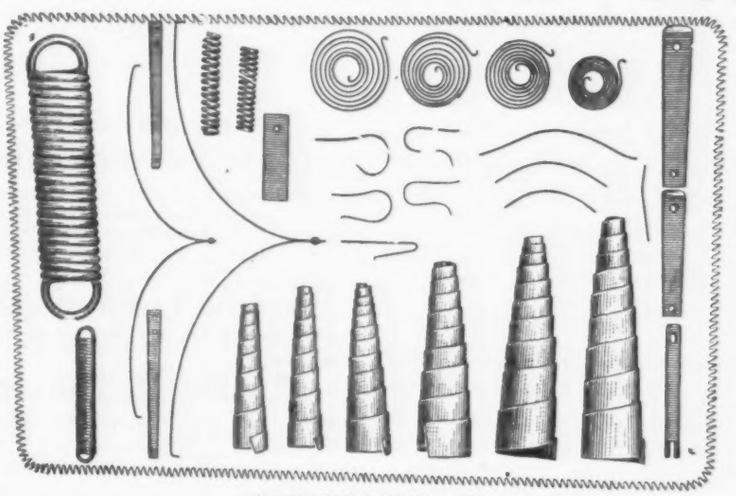

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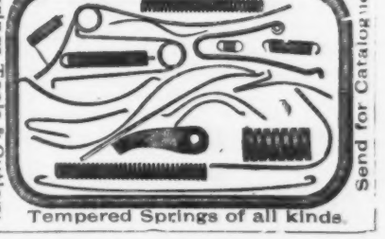

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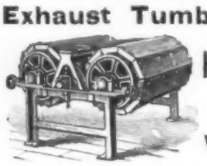

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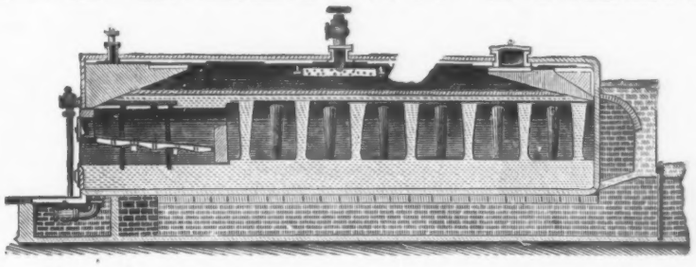

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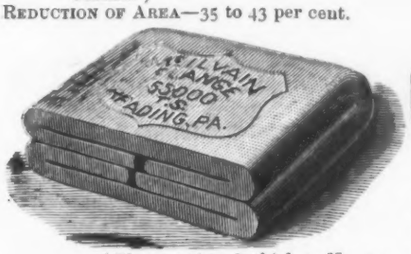

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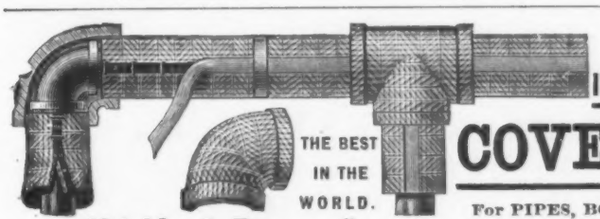

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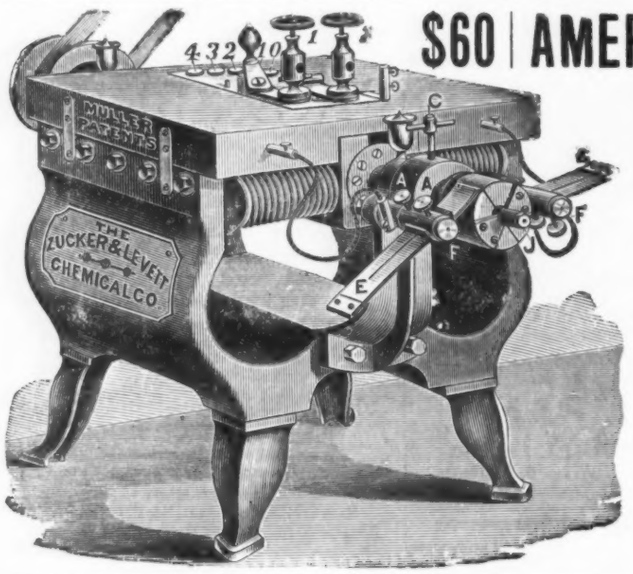

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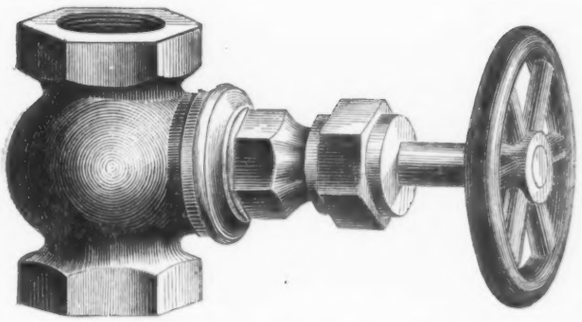

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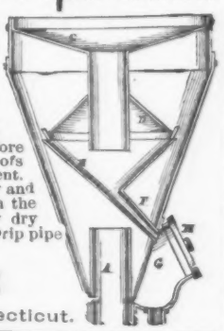

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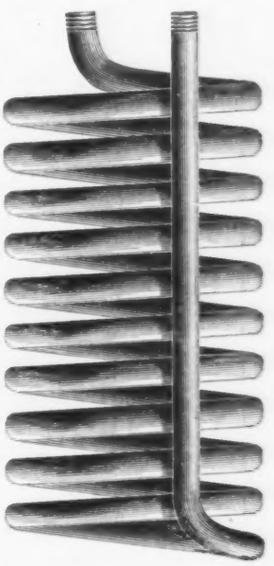

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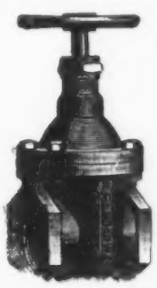

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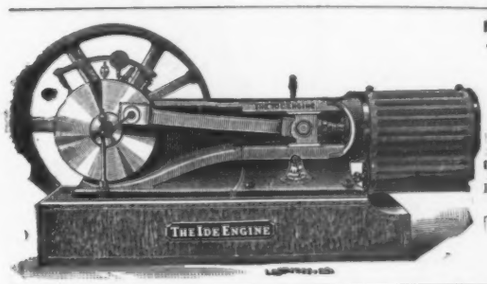

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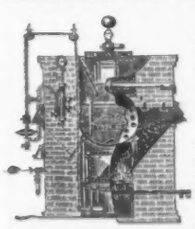

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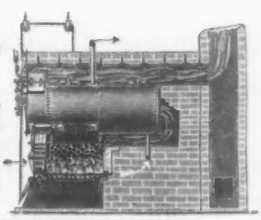

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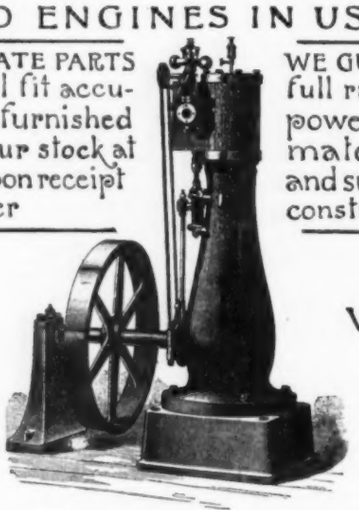

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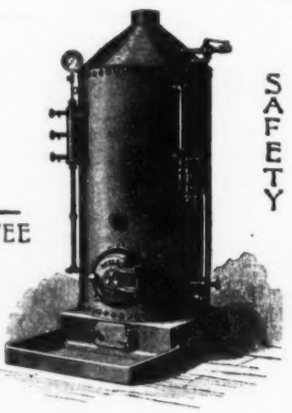

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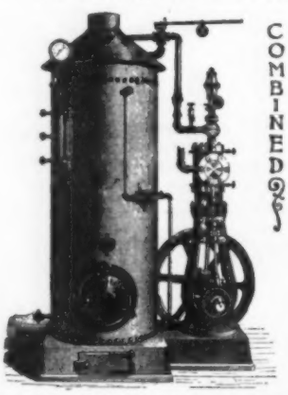

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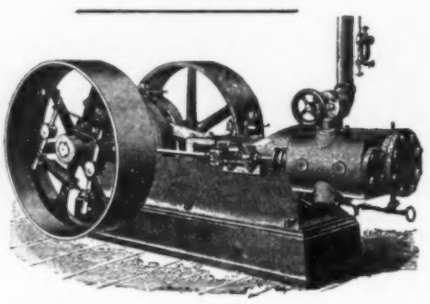

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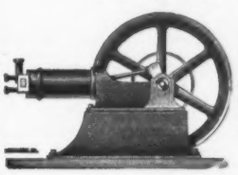

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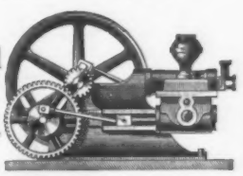

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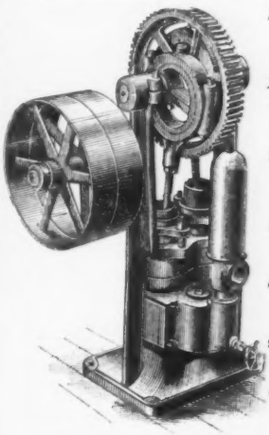

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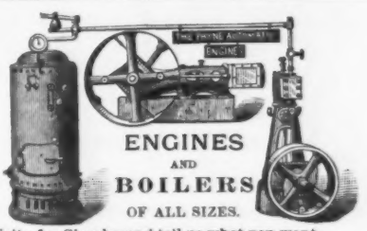

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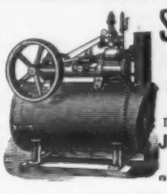

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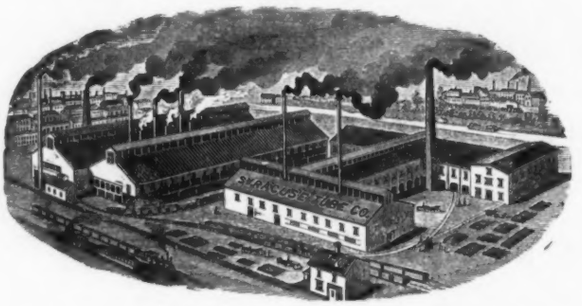

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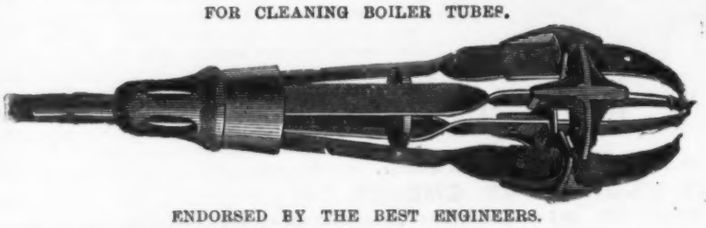

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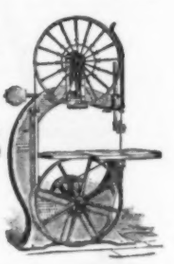

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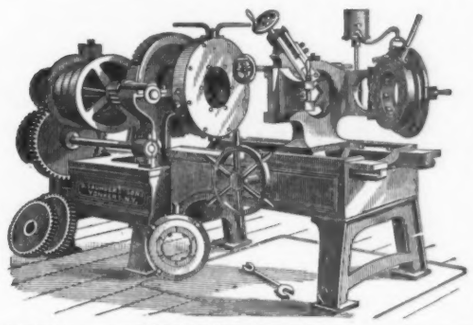

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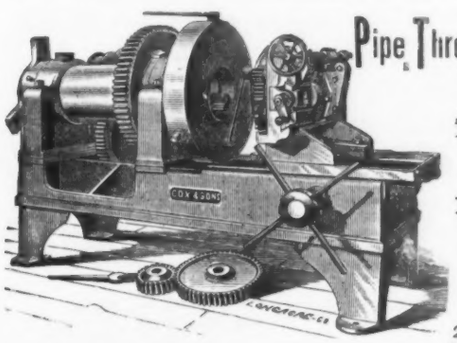

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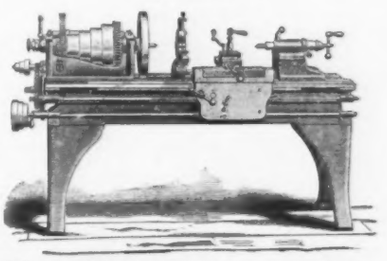

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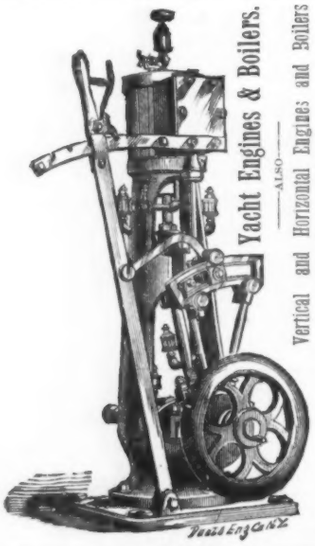

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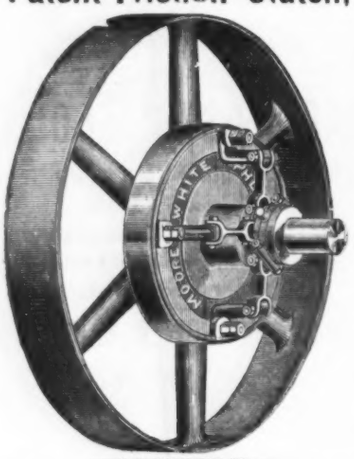

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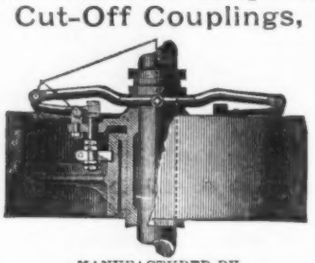

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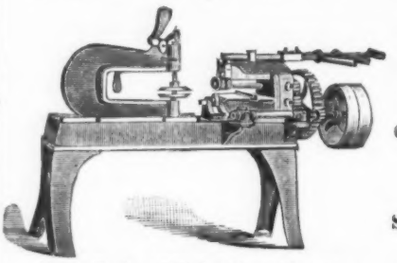

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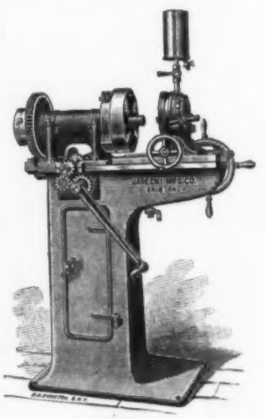

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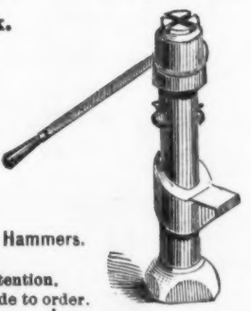

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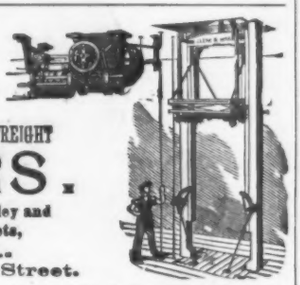

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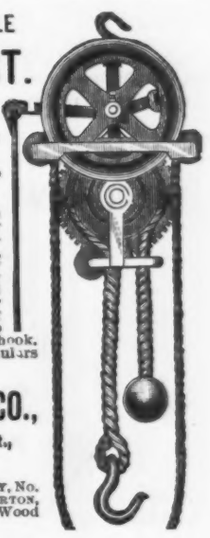

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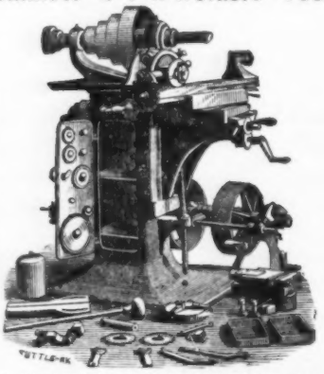

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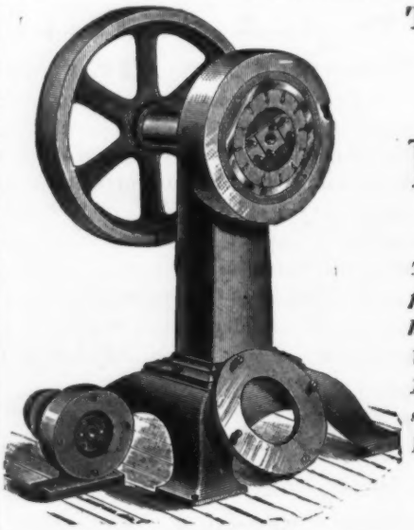

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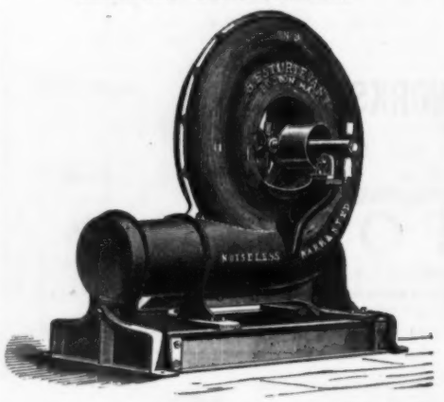

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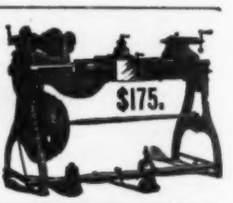

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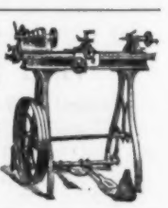

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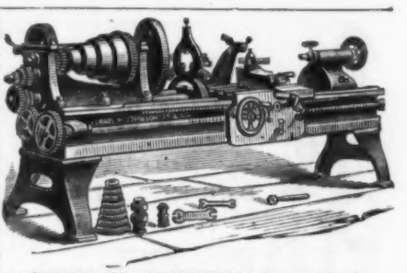

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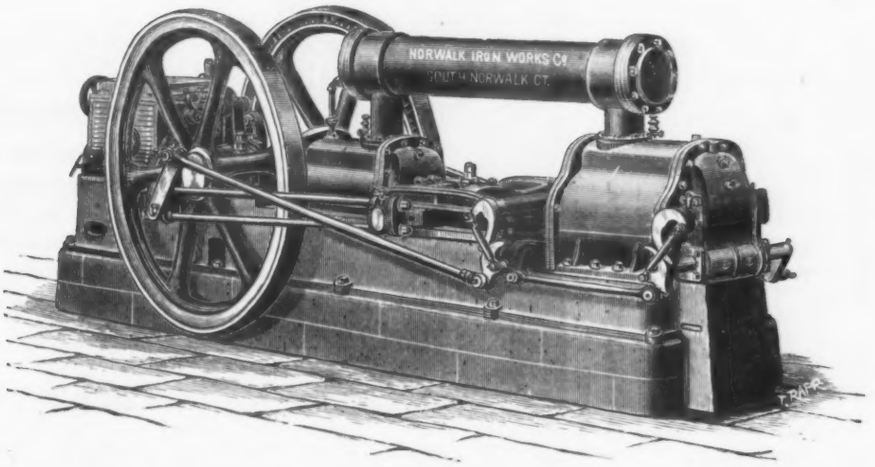

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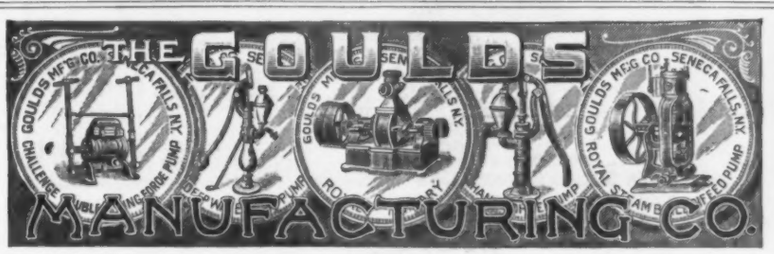

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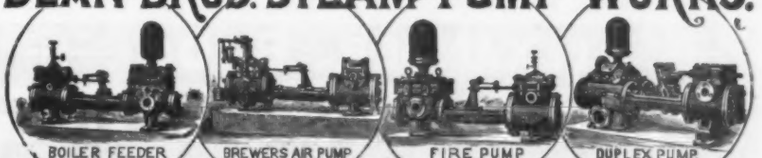

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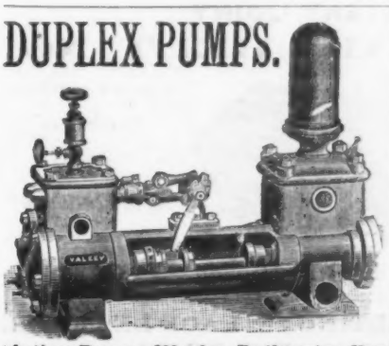

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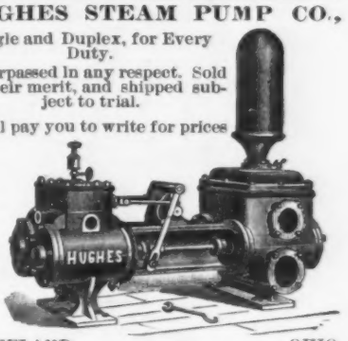

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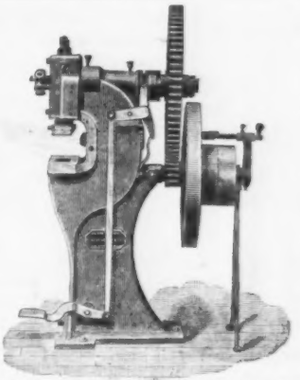

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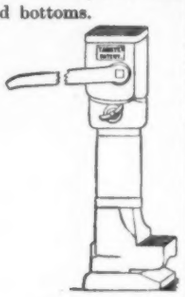

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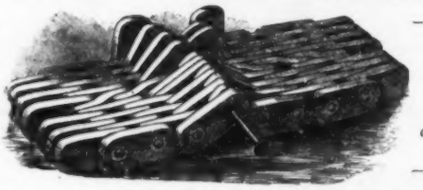

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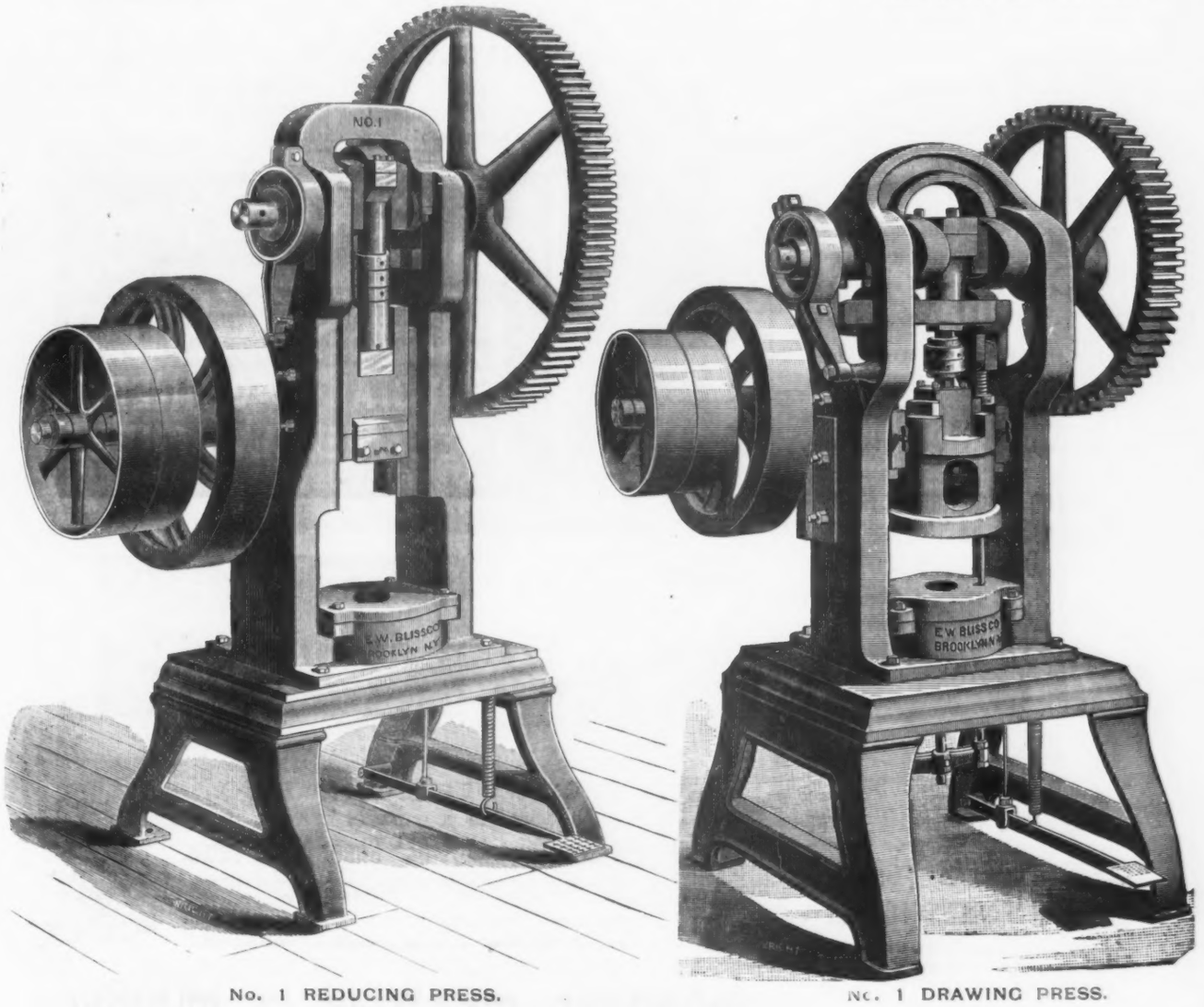

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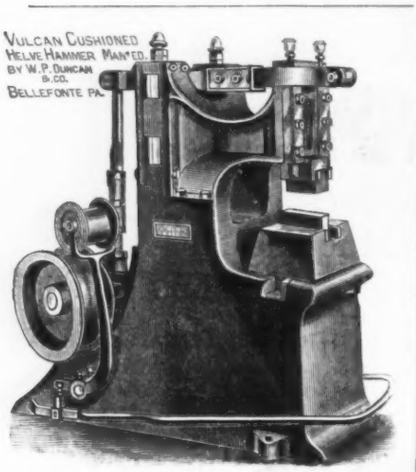

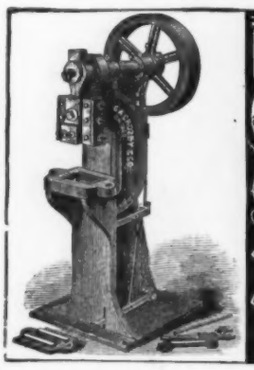

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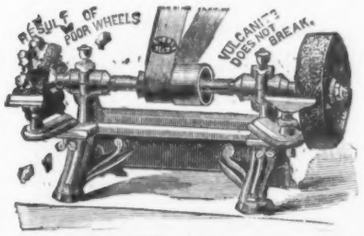

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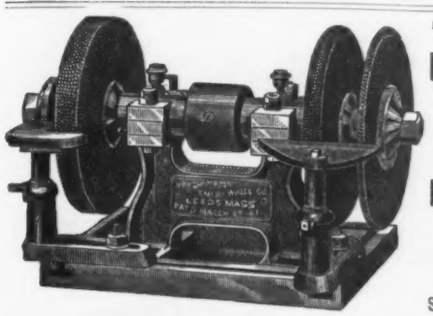

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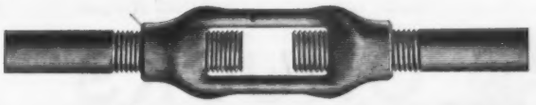
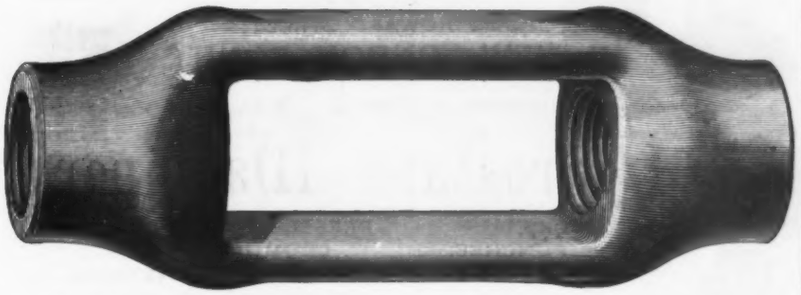
BEST.  CHEAPEST



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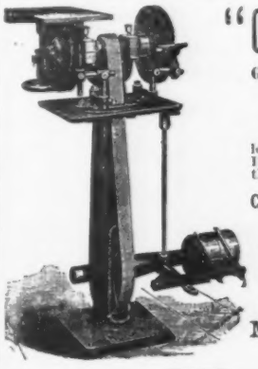

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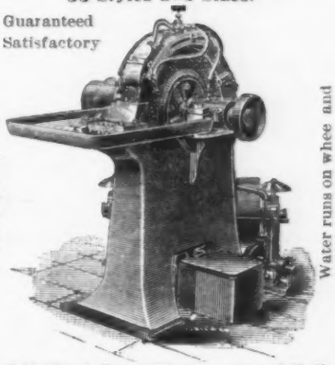

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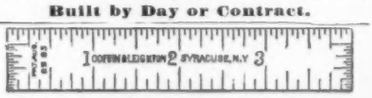

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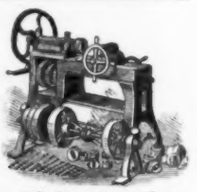

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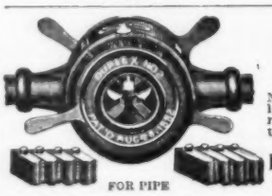

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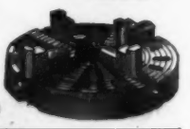

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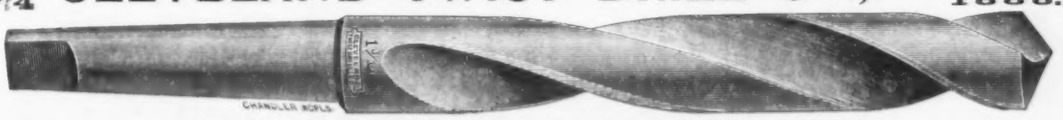

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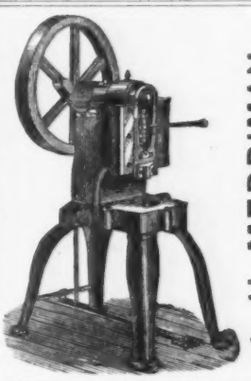

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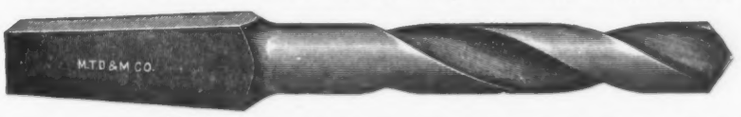

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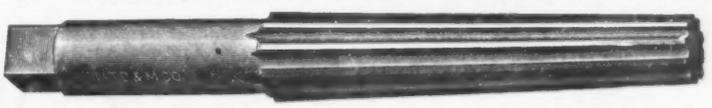

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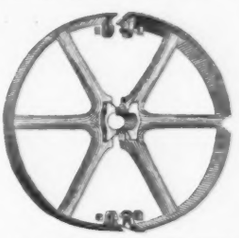

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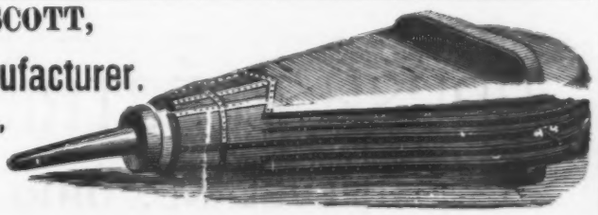

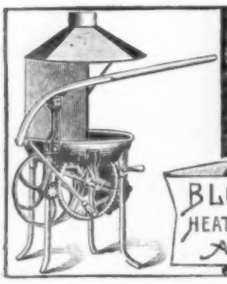

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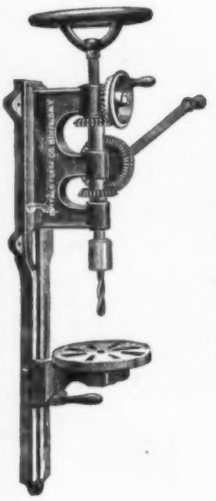

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1 28 x 12 Fay & Scott Engine Lathe.
1 30 x 14 Fifield Engine Lathe.
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1 19 x 9 Lodge, Davis & Co., Engine Lathe.
1 21 x 11 Lodge, Davis & Co., Engine Lathe.
1 24 x 10 Lodge, Davis & Co., Engine Lathe.
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1 20-inch Lodge, Davis & Co. Lever Drill. New.
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1 10-inch B. & P. Shaper. New.
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1 set Boiler Maker's Rolls, 8 ft. 3 in.
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1 16 x 36 Horizontal Engine. Good order.
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86 Engines, Horizontal and Vertical, new and second hand, 4 in. to 10 in. cylinder.
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Vertical Boilers, new and second hand, 3 to 40 horse. Large stock.
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1 18 in. x 10 ft. " " " "
1 18 in. x 8 ft. " " Wamesit. "
1 18 in. x 8 ft. " " Second-hand.
1 18 in. x 6 ft. Screw Cutting. " "
1 1-Horse Acme Oil Engine.
1 4-Horse Yacht Engine, complete.
1 15 " " " "
1 20 " Horizontal Engine; and 30-Horse Return Tubular Boiler; first-class order; complete; all castings, fittings and stock.

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Baker Blowers, Nos. ¼, ½, 1, 2, 4½, 5½ and 6.
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Two Wheelock Engines, Automatic, 24 x 48 inch.
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1 " " 24 in. x 15 and 16 ft.
1 " " 22 in. x 10 and 12 ft.
1 " " 20 in. x 10 and 12 ft.
1 each " 18 in. x 8 and 10 ft.
1 " " 17 in. x 8 ft
1 " " 16 in. x 6, 8 and 10 ft.
1 " " 14 in. x 6 and 8 ft.
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1 Planer. 20 in x 20 in. x 4 ft.
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1 " 40 in x 40 in. x 4 ft.
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1 " 30 in. x 30 in. x 12 ft.
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10 x 8 x 12 Knowles Pump.
10 x 5 x 13 Cameron.
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Engine Boiler, Rock Drills, Chain Elevator and Conveyers.

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1 32 in. x 18 ft. bed, treble-geared **LATHE.**
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For prompt delivery.

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ENGINES.

14 in. x 48 in. Corliss Beam.
26 in. x 6 ft.
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New Engines, from 2 H.-P., Vertical or Horizontal.

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1 Planer, planes 12 ft. long, 48 x 38, double heads on
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50 Key Seating Machines.
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All the above are new and first-class.
The following second hand Engine and Boilers:
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Blowing Engine, new and first-class; Steam Cylinder 36 in. diam.; Blowing Cylinder 84 in diam.; Stroke 48 in.; Weight 71 tons. Can ship in ten days' notice.

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One Heavy Plate Shear, 48-inch throat.
" Large Lever Shear. Cutting old rails.
" Small " " " scrap iron.
" Rotary " " " strips 5 16 in.
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" Upright High-Pressure Engine, 16 x 18 in.
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Upright Tubular Boilers 15 ft long 60 in diam.
Cylinder Boilers. 20-24 ft long, 30 in. diam.
Stacks, 30 to 50 ft. long, 30 in. diam.
One Crane (Iron) about 5 tons.
One Crane about 5 tons capacity.
Boshes, Steam Piping (cast and wrought iron).
Blast Pipe, Cinder Buggies, Tanks, &c.
Beam Engine, 14 x 30 in.
The above are in good order, and for sale in lots to suit for immediate delivery.

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DROPS AND LIFTERS
bought, sold, or taken in exchange for new.

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ROLL TURNING LATHES BLOWER AND ENGINE.

One Single Roll Turning Lathe, 18 in. Roll
" Upright Engine, 6½ in. x 17 in.
" Root Blower No. 7.
All in good order.

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LATHES,
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Comprising a complete outfit for making 500 Kegs of Nails per day (except furnaces and boilers).
One 16-in. Nail Plate Train of three stands of rolls, with pinions tools and fixtures complete.
One 18-in Muck or Forge Train, two stands of rolls.
One 500-Horse-Power Corliss Beam Engine, with condenser, pumps and other connections.
70 Nail Machines.
3 Spike "
3 Guillotine or Plate Shears
15 Grindstones, fixtures and countershafts.
43 Gould & Patent Nail Feeders.
About 600 ft Shafting with pulleys; also Lathes, Planers, Drills and all necessary tools to do repairs
All in perfect running order and will be sold cheap, as a whole or in parts. Above now located at Weymouth Iron Works, East Weymouth, Mass.
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ONE OF GEORGE H. CORLISS'S UPRIGHT ROLLING MILL ENGINES;

Cylinder 32 in. x 60 in.; Shaft, 17 in. Diameter, with fly wheel of 25 tons weight and 20-foot diameter fitted to the shaft; also 1 Herriman Heater 4 feet diameter. 12 feet high with steam and exhaust pipe and fittings for same; also 2 Sturtevant Steel Pressure Blowers, 6 ft. diameter; Outlet 20 x 24 with 14 in. pulley on each side for 12-in belt. Address
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ONE SCREW PLANER.—14-foot Bed; will take in 4 feet between uprights.

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FOR SALE AT LOW PRICES.—1 each, 12 and 16-in. Turret Lathe Warner & Swazey, good order. 1 2-inch Automatic Turret Lathe. Brock new, $150. 1 2 Spindle Drill Press with Adjustable Spindles, $50. 1 No. 2 Garran Hand Feed Miller, good order, $75. 1 Power Punch, punches ½ x ½ new, $1 5. 2 Large Screw Punches, good order and cheap. 1 3-8 spindle Horizontal Nut Tapper, good order, $75. 1 36-inch Car Wheel Borer good order, $250 1 36-inch Pulley Turning Lathe. 1 Seymour Pulley Balancing Machine.
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One new Star Tool Co.'s Cutting-off Machine, capable of cutting 5-in stock.
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Twenty new modern Lathe and Planer Chucks, popular makes, all sizes, at large discounts from manufacturers prices.

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One 18 x 48 Horizontal Corliss Engine.
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Two Hor. Tubular Boilers, 80 H.-P., new tubes.
One each Nos. 2, 3 and 6 Knowles Steam Pump.
" Worthington Duplex " 7½ x 4½ x 10.
" Pond Planer, 42 x 42 x 26 ft. Fine order.
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26-in. Upright Drill Press Second-hand		135
10-in Crank Shaper. New		225
20-in Friction Shaper. New		300
5 in. x 6 ft. Engine Lathe Rod	New	190
17 in. x 8 ft. " and Power Cross	New	240
15 in. x 6 ft. " Feed.	New	175

The above tools can all be shipped at once.
S. M. YORK, Cleveland, Ohio,

TUBULAR BOILERS.

For sale, three 60 H.-P. Vertical Tubular Boilers (will guarantee 80 lbs. or over, Hartford inspection). Good as new. Only used six months. $300 each on cars, cash or exchange for other material.
Address "BOILER," Office of *The Iron Age*, 202 South Fourth street, Philadelphia.

FOR SALE.
Wire Mill Machinery.

Enquire for particulars of the
LOVELL MFG. CO., Limited,
Erie, Pa.

FOR SALE.

Old Iron and Metals in large or small quantities by

PETTIS & HIGGINS,
301 Fountain Street, Providence, R. I.

One-quarter interest in a manufacturing company for sale very low.

Address,
JOHN BROWER,
P. O. Box 1423,
New York.

STEEL PLATE.

For Sale, a lot of Steel Plate 5-16 in. to ½ in thick up to 108 in. wide; will shear in size and shapes to suit.

THOMPSON C. GILL & CO.,
210 So. Third St., Philadelphia.

FOR SALE, CHEAP.

1 Two-High 18 inch Train.
50 Nail Machines and Patterns—8d, 10d and spike.
1 Steam Hammer and Patterns.
1 Sturtevant Blower, No. 12, outlet 37 in. x 37 in.
FALL RIVER IRON WORKS CO.,
Fall River, Mass.

ASSIGNEE'S SALE

—OF—

The Lomas Forge and Bridge Works,

OF CINCINNATI, OHIO.

BY ORDER OF THE PROBATE COURT, the undersigned will receive written proposals up to Monday, October 8, 1888, at 12 M., at the office of the company, No. 217 West Second Street, for the purchase of the above works, consisting of Engine and Boiler, Overhead Travelers and Cranes, Heavy Lifts, Power Presses, Drill Presses, Screw Cutters, Milling Machines, Lathes, Hydraulic Press, Shaping Machines, &c., and all other Machinery, Tools, Fixtures, Office Furniture, Material, Goods on hand, and other personal property belonging to the concern. It is thoroughly equipped for making Bridges, Heavy Forgings, Bridge Nuts, Vises, &c.

Proposals will be received for the whole or any part of the property. This property can be seen at any time on the premises, Nos. 209 to 217 West Second street, and a full inventory found in the office.

Terms of sale—One-third cash and the other balance in six and twelve months, with interest and approved security. All bids subject to the approval of the Probate Court.

CHARLES ANDERSON, Assignee.
John W. Herron, Attorney.

Valuable Manufacturing Property for Sale.

The real estate and buildings now occupied by the Watertown Steam Engine Co., of Watertown, N. Y., will be offered for sale. The property covers about four acres; has an unfailing water power on the Black River estimated at 225 H.-P. Consists of machine shop, foundry, boiler shop, blacksmith shop, store houses and tenements. The buildings are equipped with line shafting, and could be adapted to a large variety of manufacturing purposes. Moderate cost of labor, combined with low freight rates and nearness to raw material, with an abundant water power, make Watertown an exceptionally good point for manufacturing. It is essentially a manufacturing town.

The property can be divided and sold in parcels if desired. Property is sold because the business has outgrown its present quarters and is to be moved to another location in the same city, where more room is available.

Address WATERTOWN STEAM ENGINE CO., Watertown, N. Y.

FOR RENT.

VALLEY FORGE MILL AND WATER-POWER

With new Dam and Flood Gates,

Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story stone Mill, L shaped, with tin roof, 28 stone Tenant Houses and stone Dry and Dye House. The water-power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.

For particulars, address

J. B. CARTER, Hardware Manfg. Agent,
504 Commerce St. Philadelphia.

Factories Wanted!

The Commcial Exchange (Business Men's Association) of Des Moines, Iowa, invites correspondence from parties seeking new location, or wishing to engage in manufacturing. Full information regarding a city of 45,000 people, 16 railroads, coal at 50 cents per ton, and many other advantages destined to make it the leading industrial center west of Chicago. Young men especially are asked to address

J. E. CLARY, Secretary, Des Moines, Iowa.

FOR SALE.

Half interest in a paying manufacturing establishment, consisting of machine shop, foundry and blacksmith shop, &c. Business now earning good interest on money. Tools in excellent condition. Shops run overtime all spring and summer. This interest is part of an estate, and is to be closed out. Address

J. H. WHITING, Ex.,
Mt. Pleasant, Iowa.

A RARE OPPORTUNITY.—Coke, pig iron furnace, now in blast with 3¼ miles of railroad connecting with trunk line, 2 locomotives and 19 cars; 51 beehive coke ovens, store, dwellings, 75 double and single tenements and all buildings required. 1305 acres all underlaid with superior quality of coking coal, and iron ore bed on 700 acres. Everything in good working order and offered only on account of owner's advanced age. (Folio 3706.) PHILLIPS & WELLS, Tribune Building, New York.

FOR SALE.

At less than half first cost, a Delamater Duplex 16 in. x 36 in. Compressor, in thoroughly good working order. Address

L. C. BIERWIRTH, Sec'y, Dover, New Jersey.

FOR SALE,

The Business of

W. A. IVES & CO.

Owing to the death of Mr. Ives, who had no partner, his executors offer for sale the above long-established and profitable business.

The factory is situated four miles from New Haven, Conn., where Mr. Ives lived, and the drive is exceptionally agreeable. The property includes two factory buildings and machinery, a large tenement and a good cottage, good water power, steam engine, and the stock finished and in course of manufacture of augers, bits, braces, and kindred tools, many of them patented, and the good will. The works are running full force and time, and are so organized that experience is not essential to a purchaser. Many of the employees own their dwellings, near the factory, and most of them have been connected with it for many years.

Address CHARLES HOLT, Executor, 29 West Twenty-third Street, New York.

$20,000 to $25,000

could be profitably employed in an Iron Manufacturing Business, that has yielded large returns for upwards of a quarter of a century.

Would take either an active or a silent partner.

Full particulars on application.

Address "B,"

Office of *The Iron Age*, 220 South Fourth Street,

Philadelphia, Pa.

Wanted, Immediately.

Rolling Mill and Nail Machinery, including Cut and Wire Machines, 600 H.-P. Engine of good economical pattern, and full outfit for Merchant Bar, &c. Only serviceable machinery in good order wanted. Address

"H. & W.,"

Office of *The Iron Age*, 77 4th Ave., Pittsburgh.

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

60-INCH LATHE WANTED AT ONCE.

FOSDICK & PLUCKER.
SIXTH and CULVERT STS., CINCINNATI, OHIO.

Paris Exhibition of 1889.

The undersigned, late Managing Engineer and Director of one of the largest works in France, and having a long practical experience in Machinery, Metallurgy and Industrial Enterprises as well, will be pleased to represent firms in the United States who propose to exhibit their productions and inventions at the forthcoming "Exhibition." References by permission to Messrs. PHILIP S. JUSTICE & CO., 14 N. 5th St., Philadelphia; A. THEO. CHUR, Esq., 88 Potter Building, New York.

EMILE LHOMME,
50 Rue St. Placade,
Paris, France.

NOTICE.

We have appointed Mr. Chas. C. Loring, No. 4 Liberty Square, Boston, Mass., our agent in place of Mr. A. G. Tompkins, for the sale of our beams, channels, angles, tees and plates in the Eastern States, and any orders entrusted to him will receive our best attention.

POTTSVILLE IRON & STEEL CO.,
Pottsville, Penn.

TO LET.

Office and Sample Room.
One half of Basement. All of Subcellar
HUMASON & BECKLEY MFG. CO.,
80 Chambers Street, New York

FOR SALE.

A thoroughly well assorted jobbing stock of Shelf Hardware, situated in one of the foremost Missouri River cities. Do an annual business of from $300,000 to $400,000 and will increase each year. Jobbing trade alone of the city for 1887 exceeded $10,000,000. Building now occupied is one of the best arranged and equipped for the easy handling of goods in the West. Can give purchaser lease for three to five years at a very reasonable rent. The city enjoys as favorable seabord and distributing freight rates as any in the West. Territory tributary to the city makes volume of business limited only by capital employed. Sellers do not care to dispose of stock before January 1st, 1889, and by that time can reduce same to between $50,000 to $60,000. The business has always been and is now profitable, and sellers will show the very best of reasons for disposing of stock and good will. Such an opportunity rarely presents itself for purchase of a well-established and profitable jobbing business. For further and more detailed particulars, apply to or address

WM. B. FOX & BRO.,
No. 97 Chambers St., New York, N. Y.

FOR SALE.—A good, clean stock of HEAVY AND SHELF HARDWARE Stoves, Tinners' Stock Tools, &c., in one of the best towns in Iowa; 2500 inhabitants. Three railroads; end of division of one. Business established 20 years best corner location in town. Store, 22 x 85, two stories Warehouse, 22 x 30, two stories in rear. Does a large and paying business which is increasing; fine point for jobbing. Stock will invoice from $10,000 to $12,000. No trade.

Address

W. L. HAY & SON,
Iowa Falls, Iowa

FOR SALE, IN CENTRAL CALIFORNIA.—Intending to retire from active business, I offer for sale my clean and desirable stock of Hardware, Agricultural Implements, Paints, Oils, &c., &c. The business is now and has been a profitable success for more than 20 years. It is located in the delightful climate of Santa Clara County, Cal., which for health, school and social advantages is unequalled in the United States. $10,000 to $12,000 capital required. For further particulars, address "CALIFORNIA," office of *The Iron Age*, 66-68 Duane St., New York.

FOR SALE.—Hardware Store in town of 1000 inhabitants, doing good business; $2500 stock. Good reason for selling.

Inquire of
McNABB BROS.,
New Wilmington, Pa.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia please address

J. B. CARTER,
Hardware Manufacturers' Agent.
504 Commerce Street, Philadelphia, Pa.

AGENCY WANTED

OF

WIRE NAIL MILL

For New York, New Jersey and New England States.

Address "D. G.," Box 91,
Office of *The Iron Age*, 66-68 Duane St., N. Y

AGENCIES WANTED.

Two young men, energetic, reliable and good hardwaremen, solicit correspondence with manufacturers wishing to establish agency or branch in Chicago. Would help carry stock of first-class staple line. Address

"H. & G.,"
Office of *The Iron Age*, 95 and 97 Washington street Chicago.

FOR SALE.—A COMPLETE RETAIL STOCK OF BUILDERS' HARDWARE AND TOOLS. Store located in a flourishing city of 150,000 inhabitants in the Northwest. Has the largest and best trade in the city; business last year $90,000. Stock will inventory from $30,000 to $35,000. Good reasons given for selling. Address

"MINNESOTA,"
Office of *The Iron Age*, 66-68 Duane Street, N. Y.

NOTICE TO MANUFACTURERS.—An energetic young business man, at present a partner in a well-known firm engaged in the Iron, Steel and Metal trades, will very shortly be open to form a new connection, and solicits correspondence with manufacturers or others desiring to establish a branch house or agency. New York preferred. Address

"CRESCENT,"
P. O. Box 3249, New York.

FOR SALE.

18x30 inch INGERSOLL Straight Line Air Compressors.
20x30 inch INGERSOLL Straight Line Air Compressors.
24x30 inch INGERSOLL Straight Line Air Compressors.
17 ft. 3x40 inch INGERSOLL Air Receivers.
20 ft. x 40 inch " "
12 ft. x 48 inch " "
13x18 in. DICKSON Double Cylinder Hoisting Engines.
10x11 in. DICKSON Double Cylinder Hoisting Engines.
10x10 in. DICKSON Double Cylinder Hoisting Engines.
DICKSON Cages and Fans, suitable for Shafts 8 ft. wide.
8½x12 in. LIDGERWOOD Double Cylinder Hoisting Engines.
8½x9 in. BACON Double Cylinder Hoisting Engines.
7½x10 in. PAYNE Automatic Cut-off Engines.
8¼x12 in. LIDGERWOOD Improved L Engine.
8x9 in. NEW YORK SAFETY STEAM POWER CO. Upright Engine Automatic Cut-off.
3½ in. INGERSOLL "Eclipse" Rock Drills.
3½ in. " " "
INGERSOLL 3½ and 3½ inch Tripods.
" 6 in.—6 and 7 ft. Tunnelling Columns.
INGERSOLL 4½ inch Shaft Columns.
" Column Arms.
" " " Clamps.
" " Clamps.
5 ft. Sheaves for 1¼ inch Rope.
7x4x12 in. CAMERON Pumps.
5x4x12 in. " "
5x3x 7 in. " "
8x7x13 in. " "
10x7x13 in. " "
14x7x18 in. " "
16x7x18 in. " "
7x4x10 in. DAVIDSON Pumps.
Ejectors, NATHAN and McNAB & HARLIN MFG. CO., Makers.
9x15 in. BLAKE Crusher.
54 in. x 14 ft. Return Tubular Boilers, with 70 three-inch Tubes.
66 in. x 14 ft. Return Tubular Boilers, with 105 three-inch Tubes.
60 in. x 17 ft. Return Tubular Boilers, with 48 four-inch Tubes.
60 in. x 18 ft. 11-32 in. Steel Return Tubular Boilers, with 56 four-inch Tubes.
8 Horse-Power Upright Boilers.
10 " " "
25 " " "
30 " " "
60 " " "
4x6 in. STURTEVANT Double Engines.
No. 5 " Pressure Blowers on Beds.
SCHUYLER 10-lamp Dynamos, Type 2, No. 1.
BALL 10-lamp Dynamos.
THOMSON-HOUSTON 10-lamp Dynamo, No. 453.
Lamps and all fixtures for above Dynamos.
No. 3 Magneto-Electric Blasting Machines.
12x12 in. Derricks, Masts, 34 ft. Booms, 31 ft.
12x12 in. " " 55 ft. " 55 ft.
No. 2 DART'S Pipe Vises. Holds pipe from ¼ to 3-inch.
No. 2 Malleable Iron Pipe Vises. Holds pipe from ¼ to 3-inch.
3 in. and 4 in. I. D. Casing Pipe.
Pipe Stocks and Dies, ⅛ to 3-inch.
Blacksmiths' Tools of all kinds.
150 lb. Peter Wright Anvils.
LUDLOW, KENNEDY & CHAPMAN Gate Valves.
Globe Valves and Pipe Fittings of all kinds.
Frogs and Switches for 30 lb. Rails.
1¼ and 1¼ in. Oct. Drill Steel (Park Bros. Black Diamond), all lengths.
Ore Buckets 2 ft. 9 in. diameter by 2 ft. 11 in. deep.
Side and End Dump Cars, 3 ft. 6 in. Gauge 12 in. Wheels, Capacity, 45 cubic feet.

BROWN, HOWARD & CO.,
Tarrytown, N. Y.

FOR SALE, CHEAP, 6 second-hand Wire Nail Machines, of the latest improved style. Will cut anything in the line of wire nails; positive headers; one roller nearly new. Have been run about eight months, and of the latest pattern. Very strong and durable machines, and of latest improved style. For particulars please refer to me. All in running order.

GEO. A. CARTER,
Box 434, Brockton, Mass.

ONE OF THE MOST PERFECTLY EQUIPped Iron Foundries and Shops in New York would like to arrange to manufacture or would buy specialties, heavy or light cast or wrought iron. Address

"ROYALTY,"

Office of *The Iron Age*, 66-68 Duane Street, N. Y.

FOR SALE.

One Second-hand Twiss Automatic Engine 10x20; also new Automatic Engines, from 20 to 10 h.-p., and Vertical Engines, 4, 6 and 8 h.-p.

NELSON W. TWISS, New Haven, Ct.

NEW CATALOGUE.

AGENTS WANTED.

4	H.-P.	Engine and Boiler,	-	-	$243.00
5	"	"	"	- -	270.00
6	"	"	"	- -	300.00
8	"	"	"	- -	317.00
10	"	"	"	- -	360.00
12	"	"	"	- -	400.00
15	"	"	"	- -	450.00
20	"	"	"	- -	500.00
25	"	"	"	- -	584.00
30	"	"	"	- -	684.00
40	"	"	"	- -	828.00
50	"	"	"	- -	1050.00

H. M. SCIPLE,
BORDENTOWN, NEW JERSEY.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & Co., and E. BISSELL & Co.
WHOLESALE
HARDWARE AUCTIONEERS,
12 Murray St. and 13 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

FOR SALE.

500 tons of second-hand 56-pound iron T rails, with fastenings complete, suitable for relaying.

E. H. WILSON & CO.,
222 South Third Street,
Philadelphia, Pa.

WANTED.

A partner with $75,000 to $100,000 in a Jobbing Hardware Business, in one of the largest Southern cities. The firm is at present composed of two partners, one only being active. The house is a young and growing one. Sales last year $350,000. With above additional capital this amount could be doubled. A party who would be active in the business preferred.

Address, "N. H. O.," office of *The Iron Age*, 66-68 Duane Street, N. Y.

AN ENTERPRISING AND WELL-ESTABLISHED ENGLISH MERCHANT desires to enter into negotiations with some good American Iron and Steel Specialty Concern, with a view of introducing their goods into England, Scotland and British Colonies. First-class reference. Address

"HAND,"
P. O. Box 1086, Philadelphia.

A COMPANY having factory well fitted for manufacturing hardware specialties, tools, &c., desires some lately patented article to make on orders or on royalty,

Address "A. S. C.," P. O. Box 1748, New York City.

FOR SALE.—One Engine Lathe (new), 52 inch swing, 12 feet bed, power cross feed screw cutting, compound rest, &c. Price low.

SALEM FOUNDRY AND MACHINE SHOP,
Salem, Mass.

FOR SALE.

Lathe, 30 in swing, 12 ft. between centres, raised to 38 in.; also Lathe, 24 in. swing, 4 ft. between centres.

HENSHALL,
1110 Beach St., Philadelphia.

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Specially arranged for the use of
The Hardware Trade and all who buy or sell by "List and Discount."

FOURTH EDITION.

An entirely new book, enlarged, improved, perfected. The best and most practical book of the kind ever published; 129 pages, over 40,000 computations, absolutely correct; every page can be instantly referred to; bound in leather; 4x6 inches: price by mail *Three Dollars*. Address

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Send for Circulars.

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(sometimes called black-lead or plumbago) for a lubricant must be pure; to be pure must be "floated." Ask for Dixon's Dry American Graphite, or address

JOS. DIXON CRUCIBLE CO.,
JERSEY CITY, N. J.

A HARDWARE Importing House desires to extend its trade into American goods; would act as manufacturers for hardware and cutlery; is largely represented through the country by traveling salesmen. Address "J. H. J.," Box 290, office of *The Iron Age*, 66 & 68 Duane St., N. Y.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

WANTED—An experienced Salesman to travel and sell Brass and Copper Sheets, Tubes, Wire, &c. Answer to "BRASS," office of *The Iron Age*, 66-68 Duane Street, New York, with full particulars.

WANTED—An experienced Traveling Salesman for an importing hardware and cutlery house. None but those with a trade and experience need apply. Address "K. B. A.," Box 13, office of *The Iron Age*, 66 & 68 Duane St., N. Y.

WANTED.—A young man who has had some experience as traveling salesman in a Steel and Iron house. Address "S. & I.," office of *The Iron Age*, 66 and 68 Duane St, New York.

WANTED.—The makers of a line of first-class hand saws want a salesman to carry samples as a side line on commission. Address "L. C.," Lock Box 1086, Philadelphia.

TRAVELING SALESMEN WANTED.—COMPETENT, ENERGETIC AND PUSHING SALESMEN to sell a line of special goods well known to the Hardware, Stove and House-Furnishing Trade; must be familiar with the Hardware Business, and experienced in selling goods on the road, and furnish first-class references. Other lines not conflicting can be taken. Liberal commission. Address "Box 141," Manchester, N. H.

SUPERINTENDENT WANTED IN KANSAS CITY. An experienced Superintendent wanted who can take a few thousand dollars stock in the company. Address K. C. FOUNDRY & MACHINE Co., 608 Wyandotte St., Kansas City, Mo.

WANTED—A competent Salesman to travel and sell Babbitt Metals and mixed metals. Answer, stating full particulars, to "COMPETENT," Box 91, office of *The Iron Age*, 66 and 68 Duane Street, New York.

SALESMAN WANTED—One thoroughly acquainted with the Babbitt metal and solder trade. None but parties with experience in this particular line need apply. State age, reference, present position and salary. Apply, for three days, "MERCHANT," Box 298 Equitable Building, New York City.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

AN OPPORTUNITY is offered of obtaining the services of a person well known to the Trade who understands the hardware business thoroughly in all its details. Address "H. H. B.," Office of *The Iron Age*, 66-68 Duane St., N. Y.

A HARDWAREMAN of many years' experience in the Manufacturing, Jobbing and Commission Business, in office, factory and "on the road," desires a position in either capacity. Has an extensive acquaintance with the jobbing trade East and West, and unexceptionable references as to ability, character, &c. Address "NEW YORK AND CHICAGO," office of *The Iron Age*, 66 and 68 Duane Street, New York.

A GENTLEMAN who has had an extensive business experience and who possesses business abilities of a high order, would like to make an arrangement to take charge of a Chicago Agency for some first-class Eastern manufacturing firm. Best of references, both East and West. Address "H.," Office of *The Iron Age* 66 and 68 Duane Street New York.

AN Energetic Young Man of 35, of good character and habits, with 20 years' experience in the Wholesale and Retail Hardware Business, and the road, would like a position at once, inside (wholesale or retail), or on the road, for jobber or manufacturer. Address, "BOLTS," 411 Penna. Ave., Lansing, Mich.

WANTED.—Situation as Superintendent of Machine Works, by a gentleman who has had a good practical as well as theoretical training; understands handling of men to advantage, and the construction of special machines. Address, stating character of work, "D. R.," BOX 87, office of *The Iron Age*, 66 & 68 Duane St., N. Y.

TWO ABLE MODELERS, reliable workmen for all kinds of Foundry and Cast Work, want employment in a Foundry. Best references as to their ability. Address "H. F.," 4911, care of Haasenstein & Vogler, Halle A. S., Germany.

A GENTLEMEN of ability as buyer of Hardware is open to an engagement. Address "HARDWARE BUYER," office of *The Iron Age*, 66 and 68 Duane Street, New York.

A MECHANICAL DRAUGHTSMAN, competent to design, estimate and build furnace-rolling mill, mining, pumping and general machinery, engines and structural works, desires to make change of position. Best references given. Address, "MECHANICAL DRAUGHTSMAN," office of *The Iron Age*, 66-68 Duane Street, N. Y.

SITUATION WANTED by first-class Engineer and Machinist. Expert with the Indicator and well posted on the Generation and Transmission of Power. Would take charge of steam plant or machinery of mill, or the erection of engines and boilers. Correspondence solicited. "R. S. T.," office of *The Iron Age*, 66 and 68 Duane Street, New York.

AN energetic single young man, at present holding a position of house salesman in a leading jobbing Hardware house of Ohio, desires to travel for jobbing hardware or manufacturers; am well posted, strictly temperate, acquainted with Northern Ohio trade; would be pleased to correspond with parties wanting such a man. Address "LOCK BOX No. 186," Cleveland, Ohio.

A THOROUGH and PRACTICAL TOOL-MAKER and MACHINIST who has had experience in managing help, designing new tools and machinery for various kinds of manufacturing, is open for a position as Superintendent or Foreman; about 18 years' experience. Address "PRACTICAL," Office of *The Iron Age*, 66 and 68 Duane St., N. Y.

YOUNG MAN (28) with 10 years' experience in Hardware, general and builders', wholesale and retail—*all* departments, desires position; house or travel. Address "HARDWARE," care Box 10, Pittsburg, Pa.

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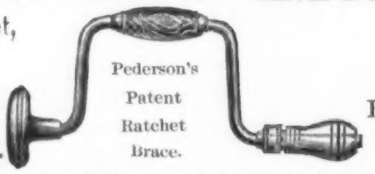

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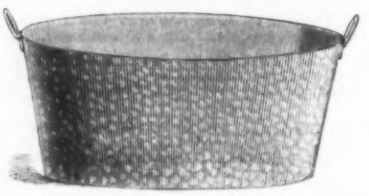

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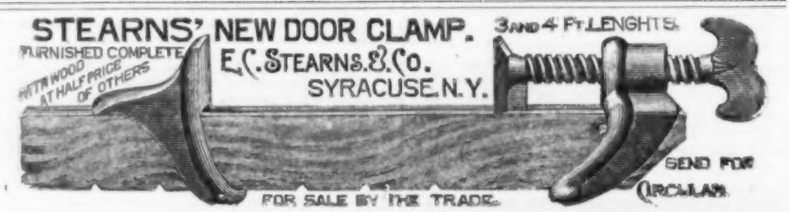

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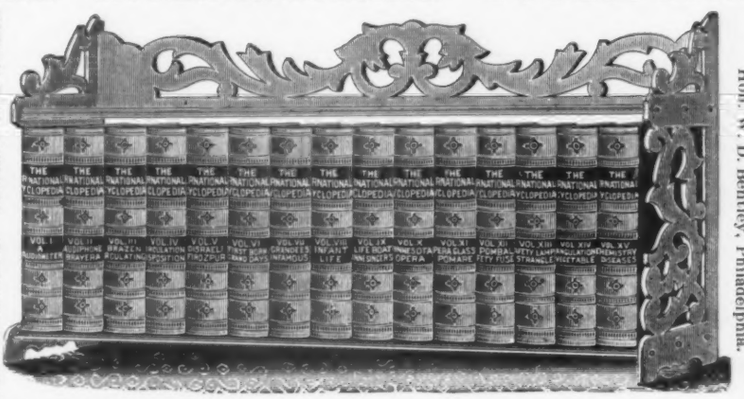

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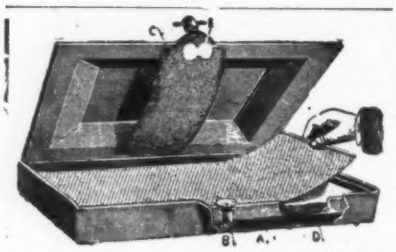

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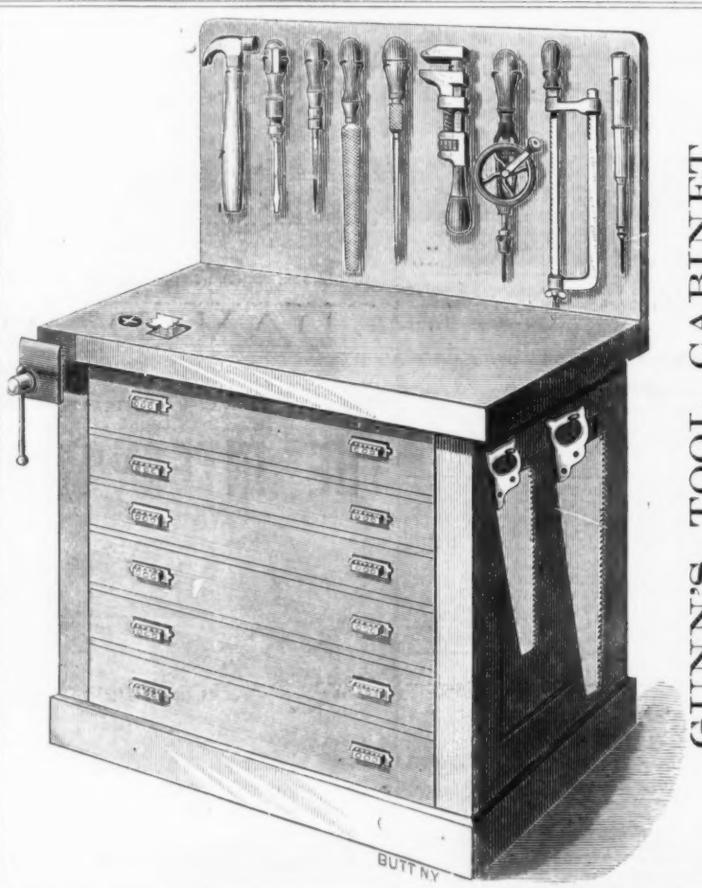

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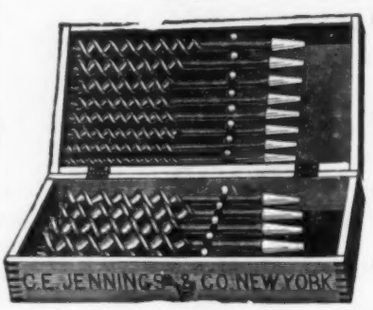

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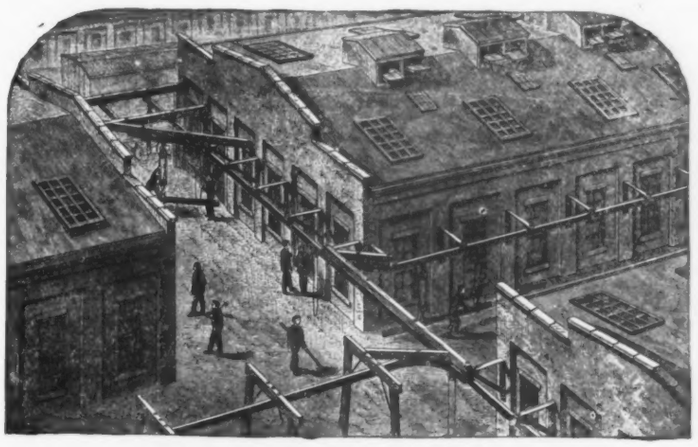

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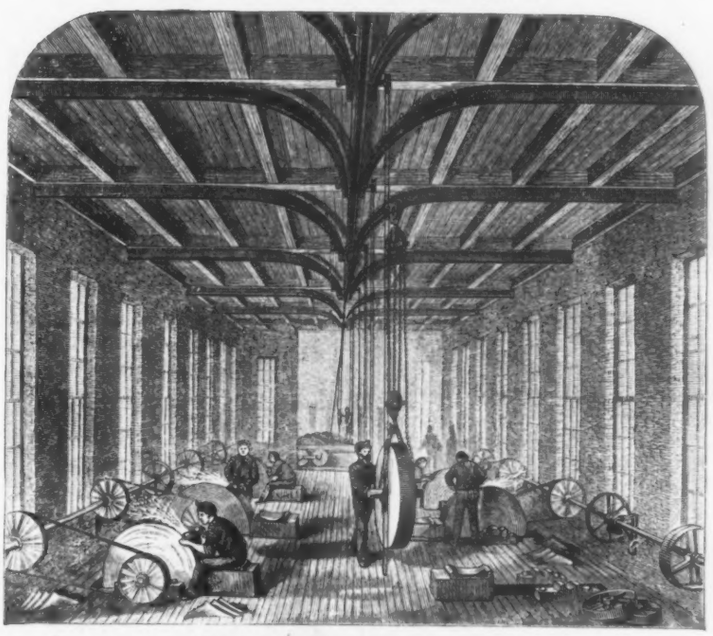

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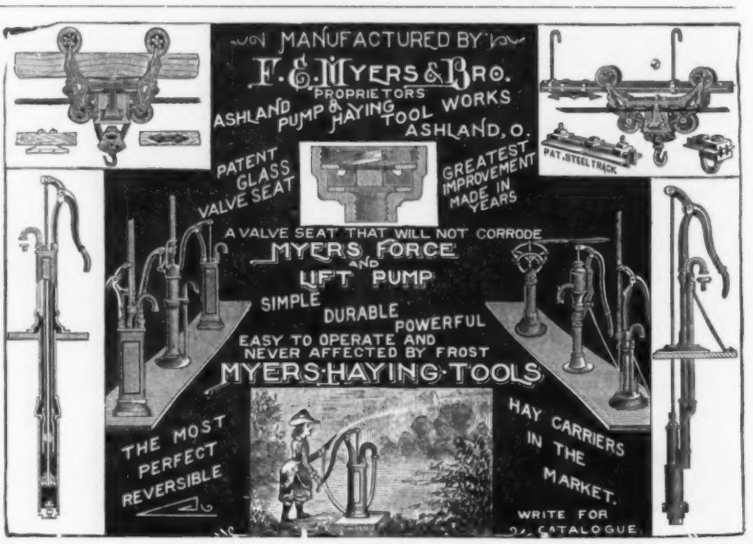

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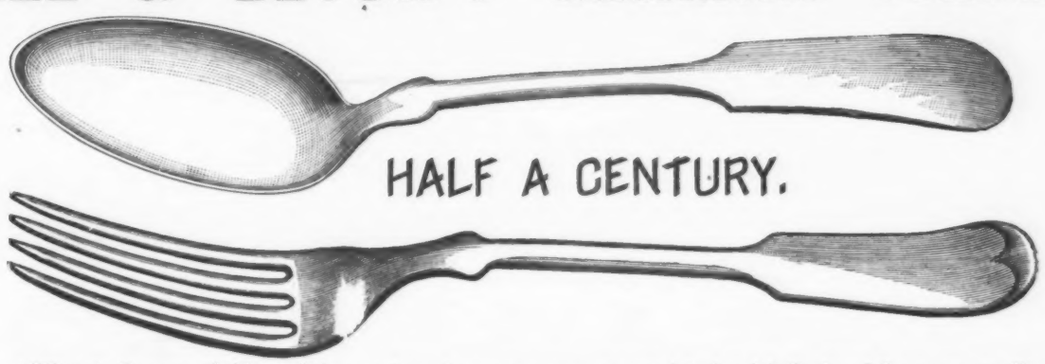

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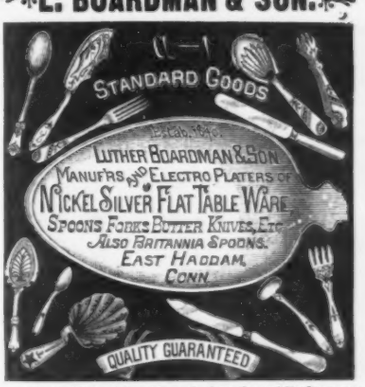

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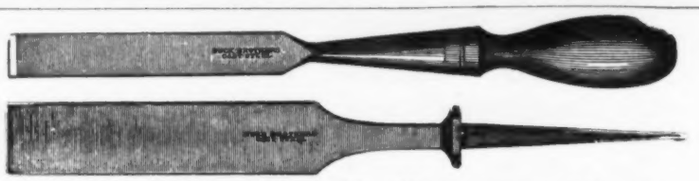

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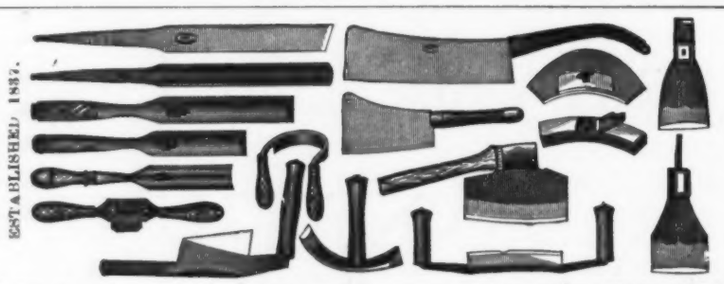

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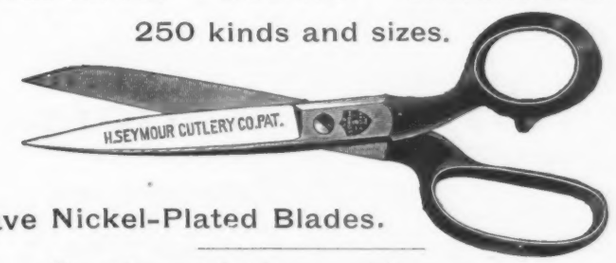

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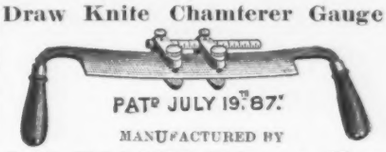

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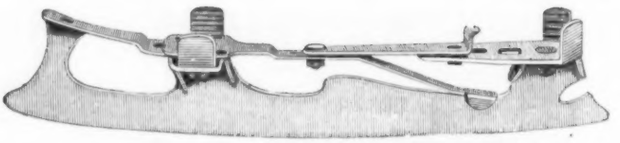

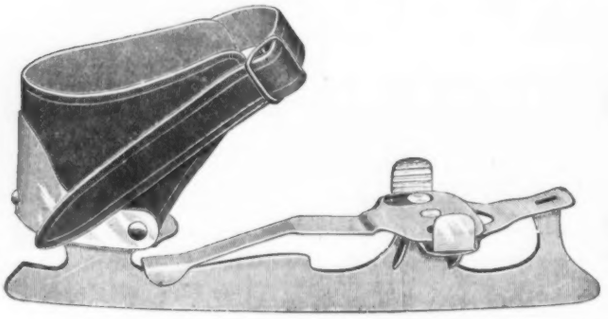

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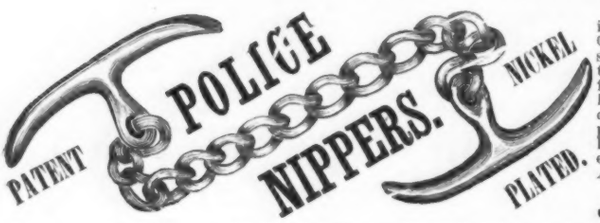

The attention of the Hardware Trade is called to the decision rendered in my favor in U. S. Circuit Court, So Dist. of N. Y., Baldwin *vs* J. G. Conway Co., Limited, *et als.*, wherein I prosecuted the defendants for selling Police Chain Twisters or Nippers, manufactured by Bean, of Boston, which are proved to be an infringement on my patent. We therefore warn the Trade and public generally against selling or using such Police Chain Nippers or Twisters, or any others made in accordance with our invention, except those made by Jos. Baldwin & Co., and the improved patterns made by us exclusively for Tower & Lyon, N. Y., who have always respected our claims, and by whom our Police Chain Twisters are kept for sale All such are stamped with our name or initials. All others are infringements.

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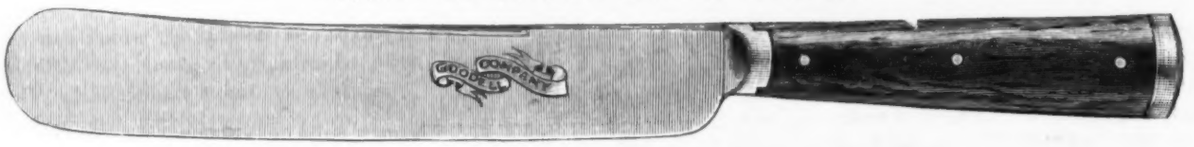

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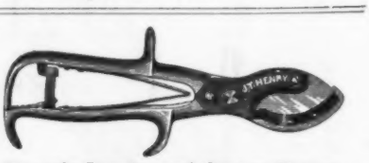

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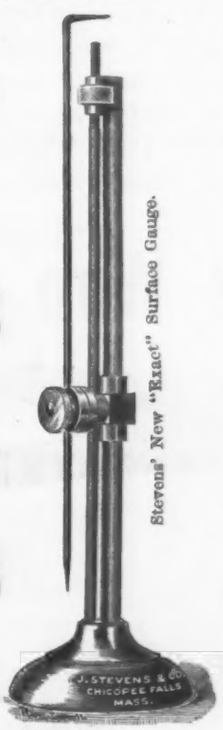

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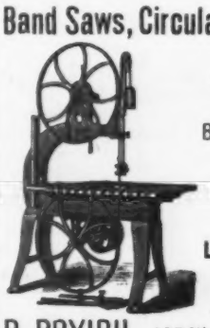

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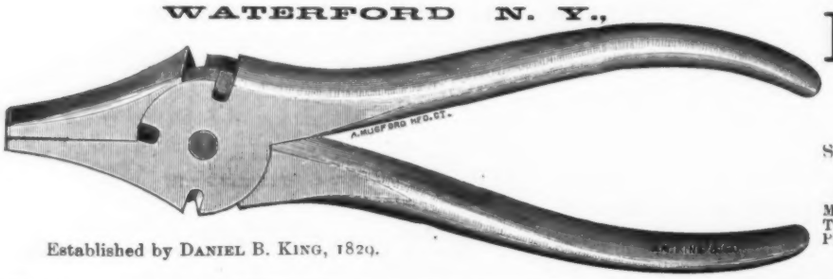

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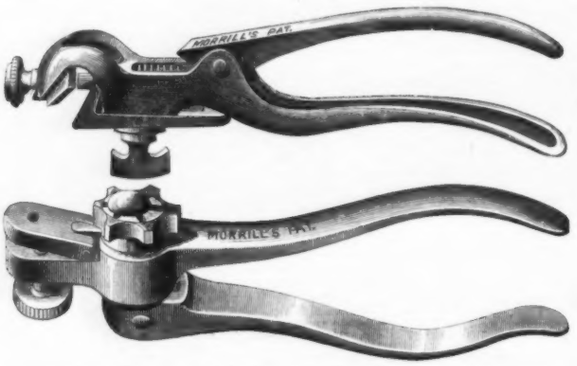

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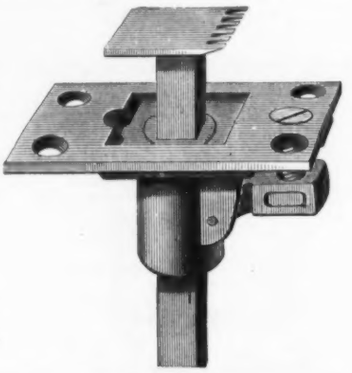

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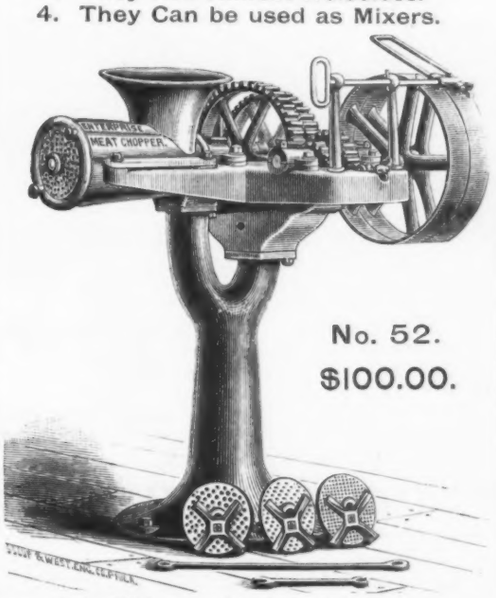

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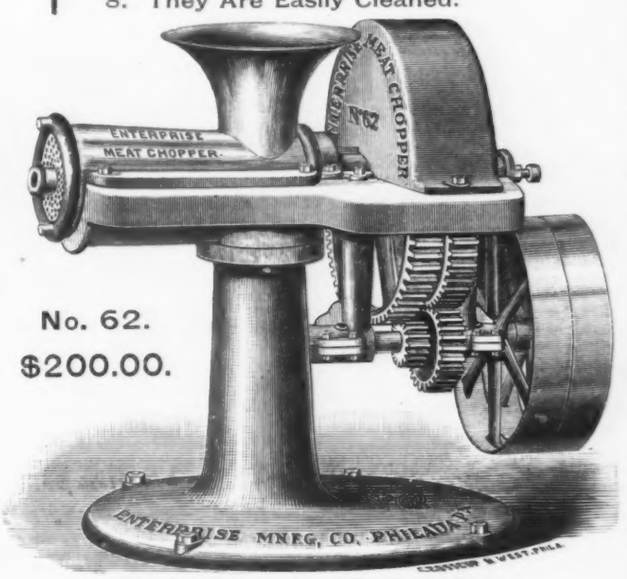

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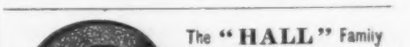

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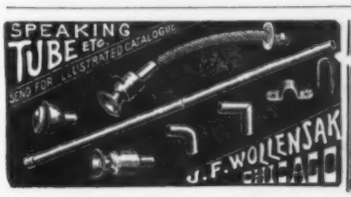

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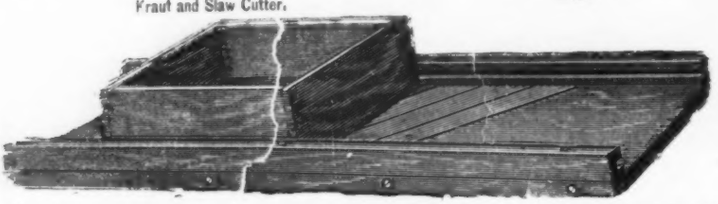

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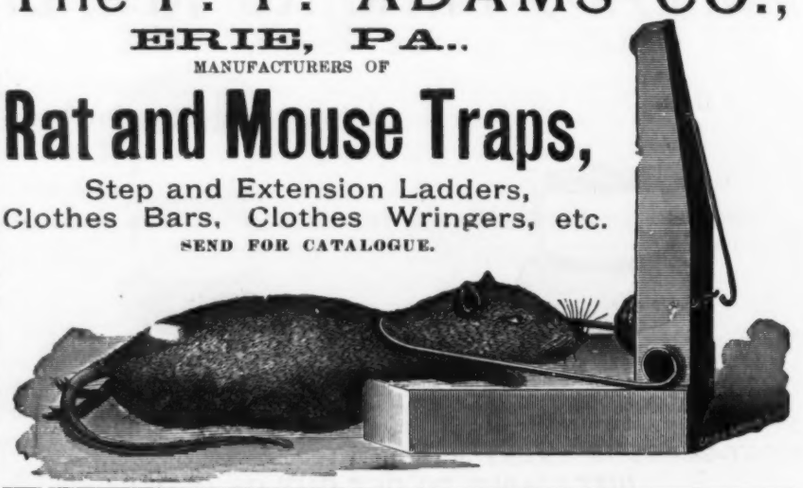

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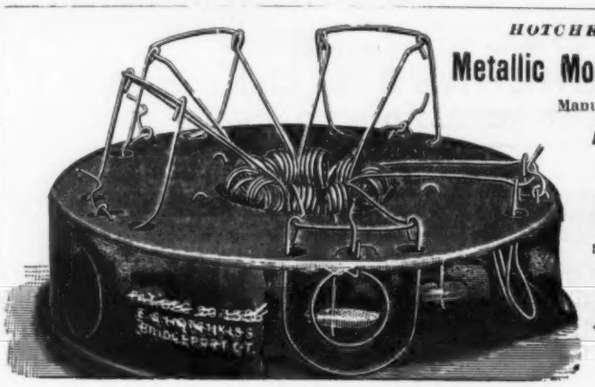

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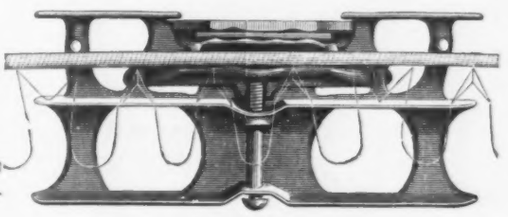

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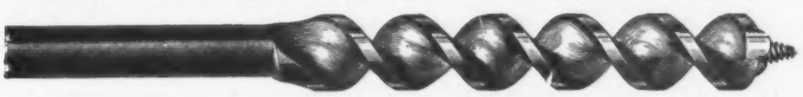

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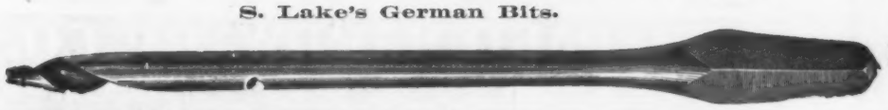

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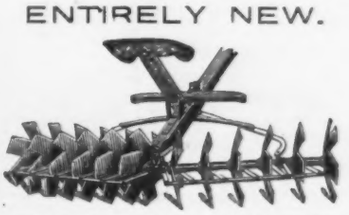

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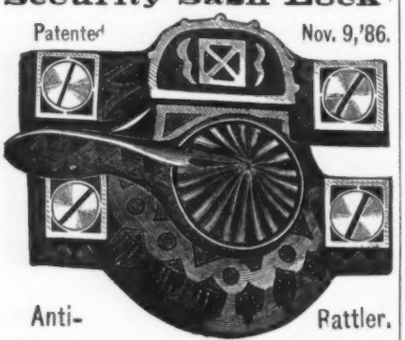

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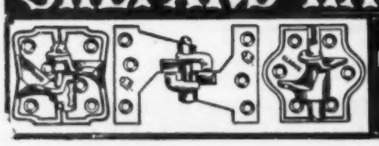

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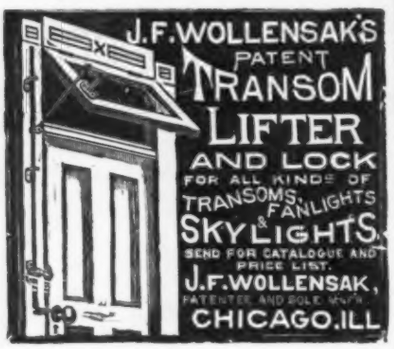

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An adjustable Roller-Cam Mechanism with positive power for balancing the weight of Sash. Easily applied and adjusted, durable and inexpensive. Costing, applied, less than the additional cost if boxed over the plain frame. No attachment to the sash or sash ribbons to kink and break, allowing ready removal for cleaning, &c. Made in three widths: Small, ⅞; Medium, 1¼; Large, 1⅝ in. for sash, each under 12, 16 and 20 lbs. List prices: 60c., 70c. and 90c. per set of 4 for 1 window. The 1888 Improved are fully warranted to give permanent satisfaction, being constructed under the personal care of the inventor. Sample Sets by mail, prepaid, 80c. and $1.00 ea., according to size. Made only by

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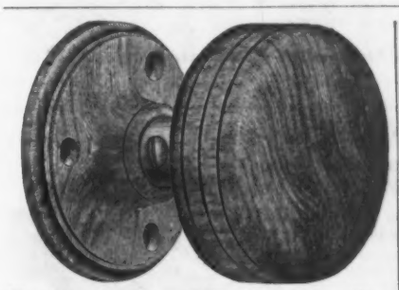

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CHECKING SPRING HINGES
for double-acting doors.

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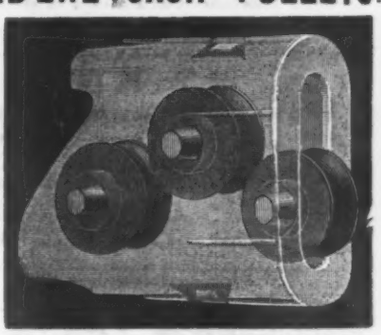

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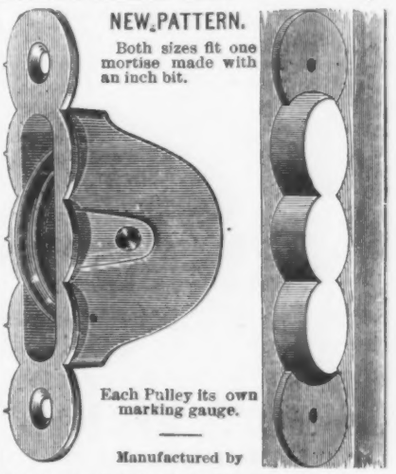

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FOUND AT LAST

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All with ¼-inch Steel Axles. These pulleys can be fitted to the window frames at the rate of 60 in an hour. Screws are furnished. It is held more firmly and makes a better finish than ANY OTHER PULLEY in the world.

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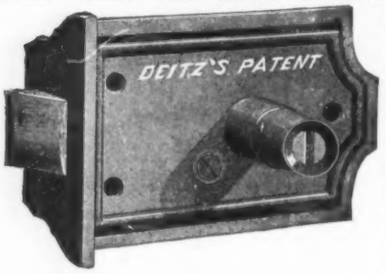

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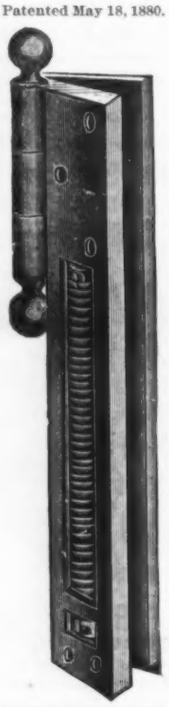
SINGLE-ACTING SPRING BUTTS.

Patented May 18, 1880.

Common Loose Pin or Loose Joint Butts can be used as Blanks with this.



This style, as in the Double-Action, requires but little labor or mechanical skill to apply them.

Doors.	2 Japn'd Pair.	2½ Jap'Nk. Sp. Pair	22 N. Pl'd Pair.	32 R. Pl'd Pair.	42 R. Bronz Pair.
⅝ to 1¼ in.	$1.00	$1.25	$2.00	$2.00	$ 7.00
1¼ to 2 in.	2.25	2.50	4.50	4.50	13.00
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BLIND AWNING FIXTURE.

They ventilate and cool the room, giving free circulation of air and refreshing shade, and do not interfere with the ordinary use of the blinds.

Attachable to Old or New Blinds.

Sold by all the Hardware Trade.
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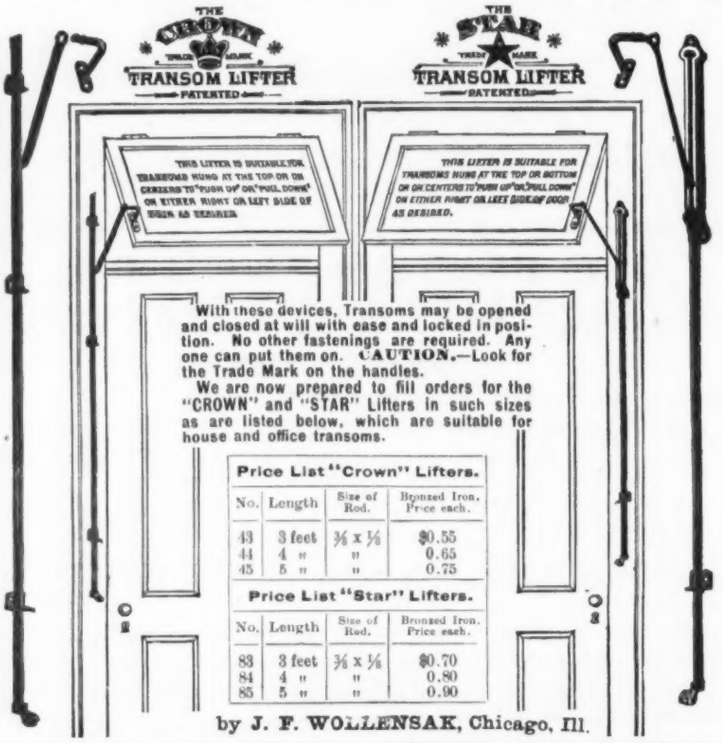
THE CROWN TRADE MARK TRANSOM LIFTER PATENTED

THE STAR TRADE MARK TRANSOM LIFTER PATENTED



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Price List "Crown" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
43	3 feet	⅜ x ⅛	$0.55
44	4 "	"	0.65
45	5 "	"	0.75

Price List "Star" Lifters.

No.	Length	Size of Rod.	Bronzed Iron. Price each.
83	3 feet	⅜ x ⅛	$0.70
84	4 "	"	0.80
85	5 "	"	0.90

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WEATHER STRIPS.

Solid Rubber—Molded into Shape. All One Piece—No Stitching—No Cementing.

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Price per foot, 5c.
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These Flexible Weather Strips are put up in lengths of 50 feet, making a package about 6 or 8 inches wide—1000 feet making one foot square. Any one can apply them with tack, hammer and shears. We also manufacture the **Peerless Rubber Window Cleaners and Floor Scrubbers.** *Liberal Discounts to the Trade.*

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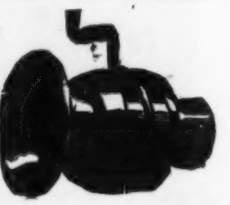

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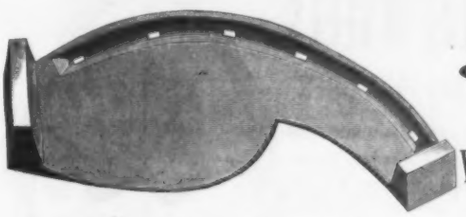

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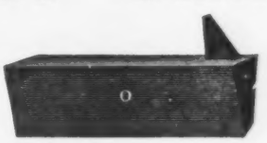

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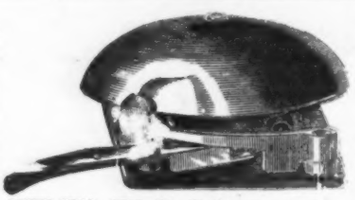

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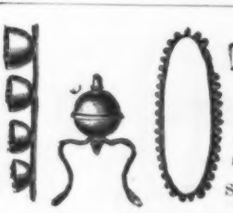

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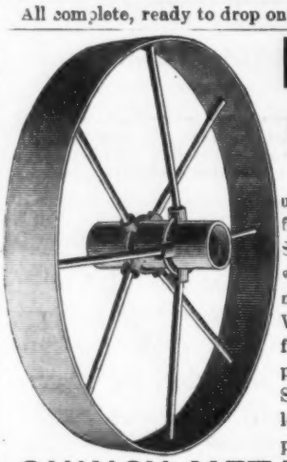

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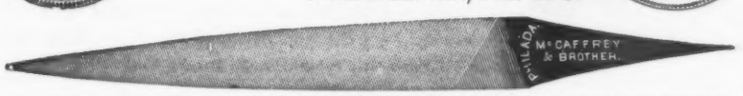

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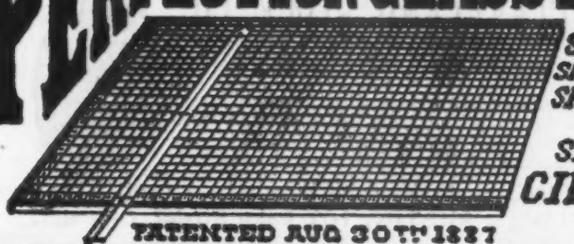

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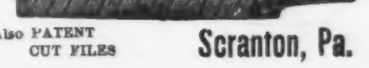

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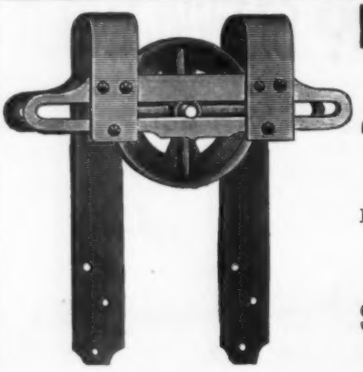

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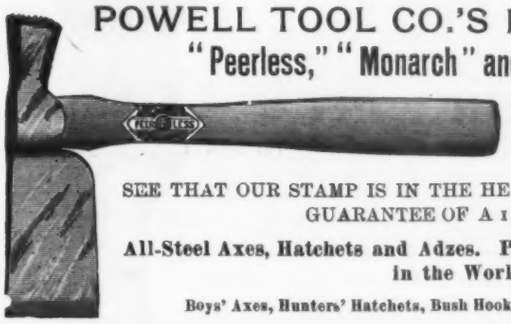

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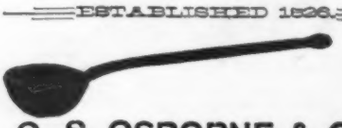

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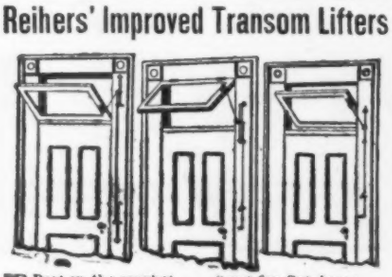

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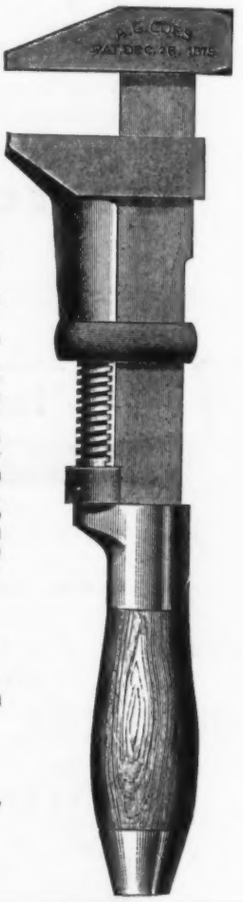

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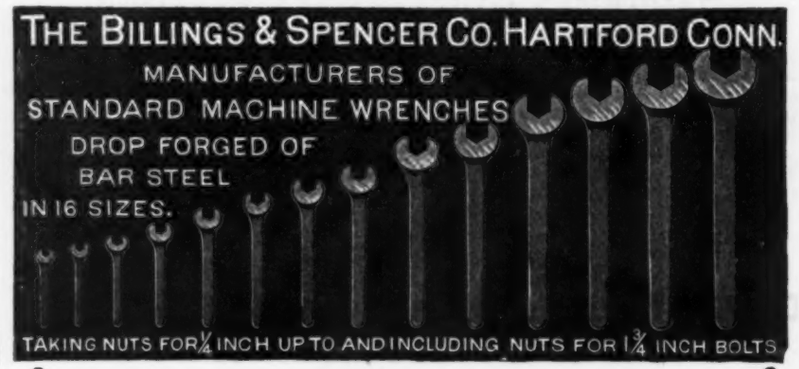

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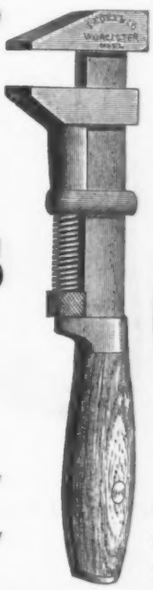

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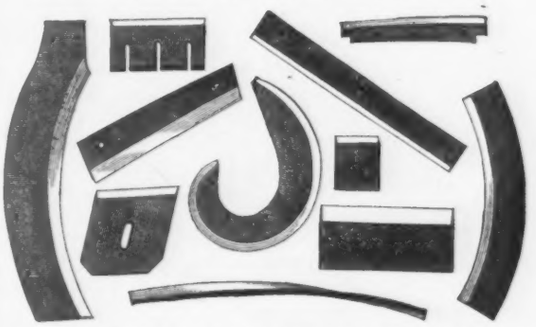

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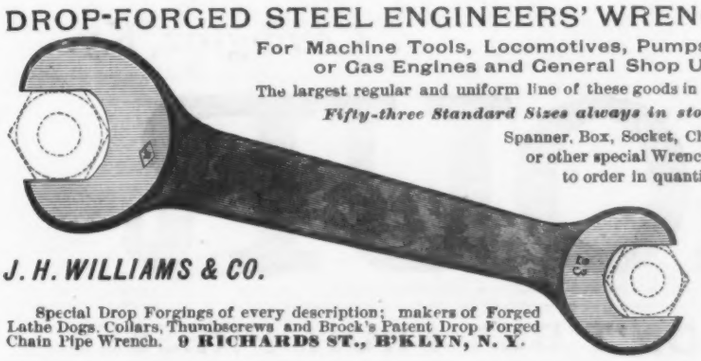

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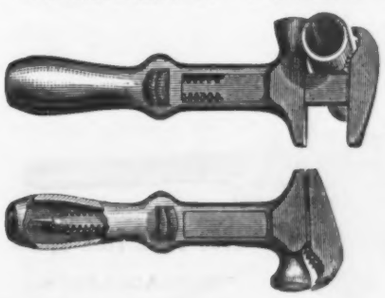

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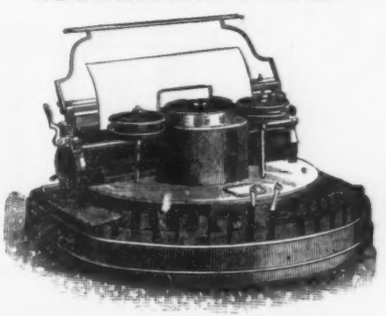

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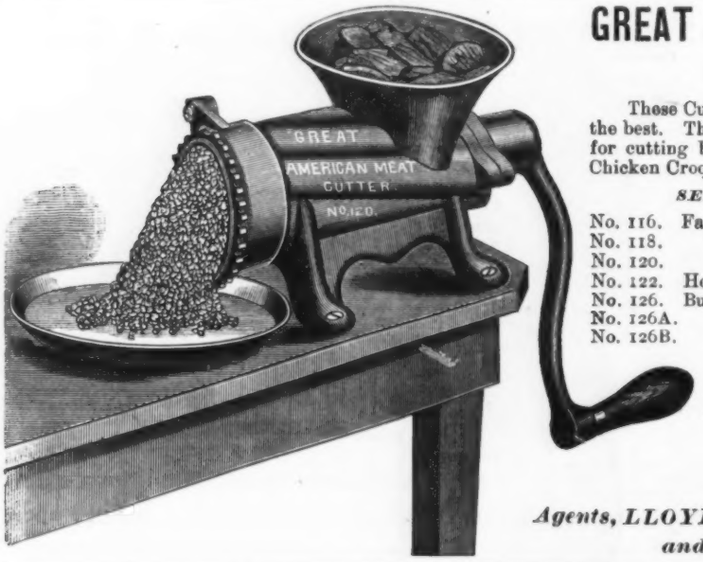

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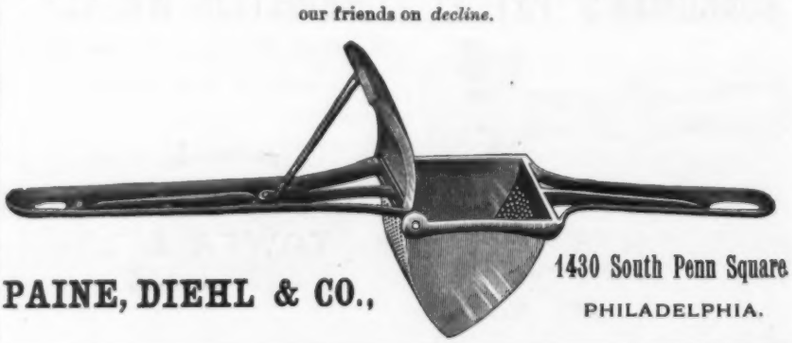

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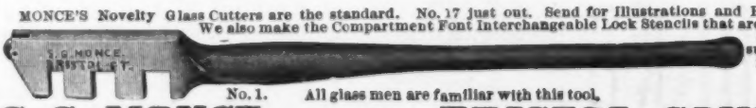

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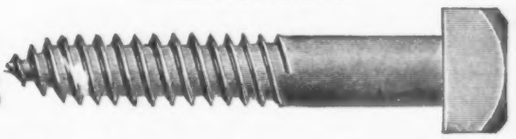

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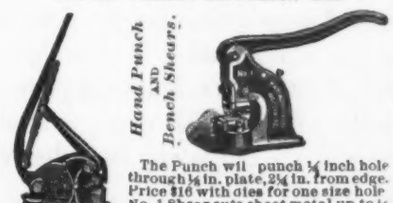

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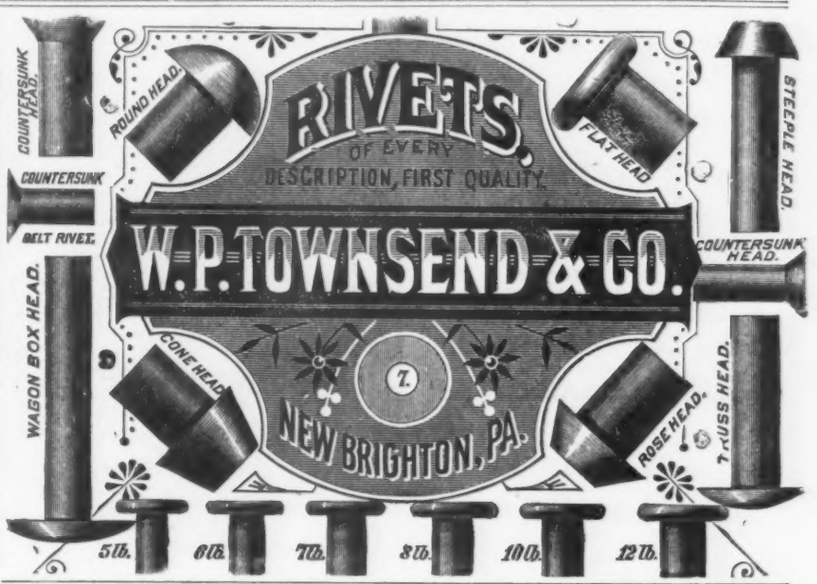

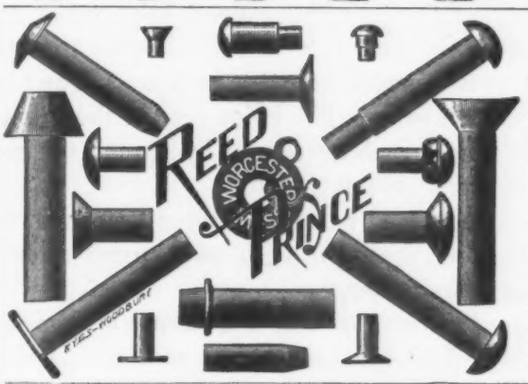

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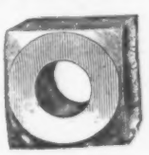

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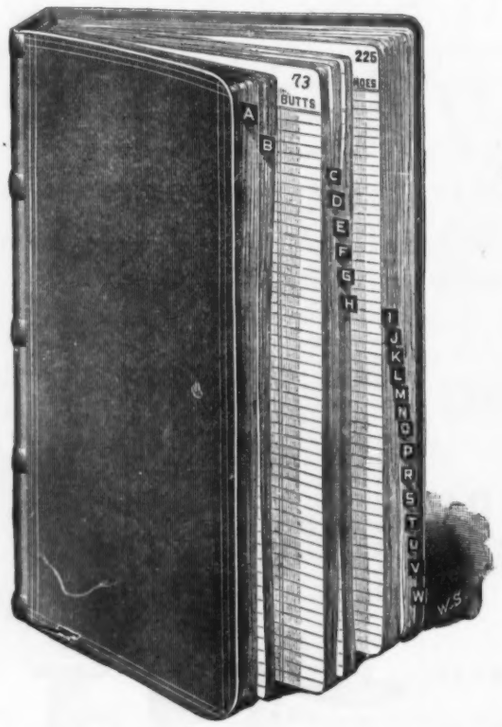

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(See Alphabetical Index, Page 84.)

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Philip C. V., 18 & 20 Liberty, N. Y.

Iron Brokers.
Danneri, Geo., 82 John St., N. Y.
Kelly Edward J., Philadelphia, Pa.
Waibaum W. H. & Co., Philadelphia Pa.

Iron Commission Merchants.
Hart Wm. R. & Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa
Lea J. Tatnall & Co., Philadelphia.
Moar J. J., 430 Walnut, Phila
Wister L. & R. & Co. Philadelphia.

Iron Ore.
Pullman, J. Wesley, Phila., Pa.
Waibaum, W. H. & Co., Philadelphia, Pa.

Iron Dealers.
Abbott Jere & Co., N. Y. and Boston.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cooney Daniel F., N. Y.
Cox Justice, Jr., & Co., Philadelphia.
Esherick & Co. Philadelphia, Pa.
Gill, Thompson C., & Co., Phila. Pa,
Hart, Wm. R. & Co. Philadelphia.
Himrod Chas. & Co., Chicago, Ill.
Hoffman J. W. & Co., Philadelphia.
Judson B. F., 457 & 459 Water, N. Y.
Keeley Jerome & Co., Philadelphia.
Lindsay, Parvin & Co. Philadelphia.
Logan, Jas. H., Pittsburgh, Pa.
Lundberg Gustaf, 38 & 40 Boston.
Moffat, Frank D., 100 Beekman, N. Y.
Naylor & Co., 99 John, N. Y.
Ogden & Wallace, N. Y.
Perkins, F. E. & Bro., New York and Providence, R. I.
Potts & Higgins, Providence, R. I.
Phillips F. R., Philadelphia, Pa.
Pierson & Co. 34 to 37 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Valentine & Strong, Philadelphia.
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson R. H. & Co., Philadelphia.
Whitney A. R. & Co., N. Y.

Iron Pig, *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston.
Lundberg Gustaf, Boston, Mass.
Williamson James & Co., N. Y.

Iron Sheet. *Manufacturers of*
Standard Iron Co., Bridgeport, O.
W. D. Wood & Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O.

Jacks.
McCoy & Sanders, 26 Warren, N. Y.

Keys.
Wollensak, J. F., Chicago, Ill.

Lathes.
Miller Falls Co., 91 Reade, N. Y.
Pyribil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co. Newburg N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hast, Foos & Co., Springfield, O

Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.

Levels.
Richardson C. F., Athol, Mass.
Tower & Lyon, 95 Chambers St. N. Y.

Locks and Knobs, *Manufacturers of*
Dietz A. E., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Smith & Egge Mfg. Co., Bridgeport.
Quackenbush, Abram, New York.
Yale & Towne Mfg. Co., Stamford

Machinery.
Adt John & Son, New Haven, Conn.
Barnes W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Machine Tool Works, Bridgeport, Conn.
Briggs, Marvin 12 Broadway, N. Y.
Bullard E. P., 62 College Place, N. Y.
Curtis & Curtis, Bridgeport, Conn.
Cruikshank D. B. Providence, R. I.
Deering Wm. & Co., Chicago, Ill.
Diamond Mch. Co., Providence, R. I.
Fall River Iron Works Co., Fall River, Mass.
Garvin E. E. & Co., 139 Centre, N. Y.
Gray & Ferry F'd'y & Boiler Co., Phila. Pa.
Harrington, E. Son & Co., Phila., Pa.
Hendey Machine Co., Torrington, Ct.
Johnson, Israel H., Jr., & Co., Phila.
Lincoln Iron Works, Rutland, Vt.
Lodge, Davis & Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pyrell P., 467 W. 40th, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian May & Co. Cincinnati, O.
Sellers Wm. & Co., Phila.
Snell Henry I., Philadelphia, Pa.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
West, Thos. D. F'd'y Co., Cleveland, Ohio.
U. Baird Machinery Co., Pittsburgh.
Wetherill Robert & Co., Chester, Pa.
Wood Thos. & Co Philadelphia, Pa.
York, S. M., Cleveland, O.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.

Machinists' Tools and Supplies.
Blaisdell P. & Co., Worcester, Mass.
King J. M. & Co., Waterford, N. Y.
Palmer, Cunningham & Co., Phila.
Sellers, Wm. & Co., Phila.

Mallets.
N. Y. Mallet and Handle Works, NY.
Boston & Lockport Block Co., Boston, Mass. and Lockport, N. Y.

Mantels.
Ehman, C., Chicago, Ill.

Meat Choppers.
Enterprise Mfg Co., Philadelphia, Pa
Lloyd and Supplee Hdw. Co., Philadelphia, Pa.

Metals.
Dickerson, Van Dusen & Co., N. Y.
Fearing Wm. S., 100 Chambers, N. Y.
Naylor & Co., 99 John, N. Y.
Phelps, Dodge & Co., Cliff st., N. Y.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton J. Blodgett, Phila.

Mincing Knives.
Shepard, Sidney & Co., Buffalo, N. Y.

Mine Lamps.
Bertels, W. B., Wilkesbarre, Pa.
Bush & Cornell Scranton, Pa
Leonard R. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ills.

Molding Sand.
Paxson J. W. & Co., Phila.

Nail Machinery.
Thomas, Dago J., 1 Broadway, N. Y.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
E. & G. Brooke Iron Co., Birdsboro.
Cumberland Nail & Iron Co. Phila.
Fuller Bros. & Co. 139 Greenwich N. Y.
North Chicago Rolling Mill Co. Chicago, Ill.
Oxford Iron Co., 81 Washington N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Hartford, Conn.
Zucker & Levett Chemical Co., 557 to 564 West 16th, N. Y.

Norway Shapes, *Rollers of.*
Naylor & Co., 99, John, N. Y.
Rowland William & Harvey, Frankford Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell Burdsall & Ward, Pt. Chester.
Shelton & Co., Birmingham, Conn.
Wilson J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn.

Oil Stones.
A. F. Pike Mfg. Co., Pike Station, N. H
Chase Geo., 107th & Harlem R., N.

Oil Stoves.
American Oil Stove Co., Gardner, Mass.

Ox Shoes.
Woodruff, Walter W. & Sons, Mt Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
Lombaert Mfg. Co., Phila.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Fraim, E. T., Lancaster, Pa.

Pails.
Brower, John, New York.

Paint.
Felton Rau & Sibley, Phila., Pa.

Patent Solicitors.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton
Stocking E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Picture Cord.
Gilmore, E. W. & Co., No. Easton, Mass.

Pig Iron.
Chamberlain, Wheeler & Co., Columbus Ohio.
Hart Wm. R. & Co., Philadelphia.
Montour Iron and Steel Co., Reading.

Pipe, Bent.
National Pipe Bending Co., New Haven.

Pipe Cutters.
Cox & Sons, Philadelphia, Pa.
Curtis & Curtis, Bridgeport, Conn.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of.*
Donaldson Iron Co. Emaus, Pa.
Fox John, 160 Broadway, N. Y.
Morris, Tasker & Co., 234 South Third street, Phila.
Reading Iron Works, Philadelphia.
Shickle, Harrison & Howard Iron Co. St. Louis, Mo.
Wood R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Gage Tool Co., Vineland, N. J.
Stanley Rule & Level Co., N. Y.

Plated Ware.
Hall, Elton & Co., 47 E. 13th, N. Y

Plumbers' Tools.
Osborne C. S. & Co., Newark, N. J

Police Equipments.
Baldwin Jos. & Co., Newark, N. J.
French, S. A., 400 Broome St., N. Y.

Polishing Machines.
Diebel Mfg. Co., Philadelphia, Pa.
Hall Mfg. Co., Philadelphia, Pa.
Watson & Stillman, 204 E. 43d, N. Y

Poultry Nettings.
Clinton Wire Cloth Co., Clint'n, Mass "Silver Finish."

Powder.
Laflin & Rand Powder Co., 29 Murray St., N. Y.

Power Hammers.
Belden R. A. & Co., New Haven, Conn.
Bradley & Co., Syracuse, N. Y
Dieneli & Eisenhardt, Philadelphia
Duncan, W. P. & Co., Bellafonte, Pa.
Stiles & Parker Press Co., Middletown, Conn.

Power Punches and Shears.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Press and Strainer, Fruit.
Paine, Diehl & Co., Philadelphia, Pa.

Presses, Dies, &c.
Crosby G. A. & Co., Chicago, Ill.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mach. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Presses, Power, *Makers of.*
Merriman A. H., West Meriden.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pressure Regulators.
Aller Amos, 109 Liberty, N. Y.

Pruning Shears.
Henry, John F., Hamden, Conn.

Pulleys.
Edinburg Pulley Co., Edinburg, Md.

Pulley Blocks.
Yale & Towne Mfg. Co., Stamford Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Gould's Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
Keystone Engine and Machine Wks Phila., Pa
Laidlaw & Dunn Co., Cincinnati, O.
Valley Pump Works, Eastampton Mass.

Pumps, Force.
Myers F. E. & Bro., Ashland, O.
Union Mfg. Co., 103 Chambers, N. Y

(See Alphabetical Index, Page 84.)

Pumps. *Makers of.*
Columbiana Pump & Machine Co.
Douglas W. & B., Middletown, Conn.
Goulds Mfg. Co., 60 Barclay, N. Y.
Silver & Deming Mfg.Co., Salem, O.
Union Mfg. Co., 103 Chambers, N. Y.

Punches.
Avery, W. G. Mfg. Co., Cleveland, O.
Fulton Iron and Engine Works, Detroit, Mich.

Punching and Shearing Presses.
Long & Allstatter Co., Hamilton, O.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman St., N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel.—Cambria Iron Co., Johnstown Pa.
Joliet Steel Co., 11 Pine, N. Y.
Montour Iron & Steel Co., Danville.
North Chicago Rolling Mill Co., Chicago, Ill.
Scranton Steel Co., Broadway, N. Y.
Union Steel Co., Chicago, Ill.

Railway and Machinists' Supplies.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams Co., Erie, Pa.
Estey W. J., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Ct.
Ripley Mfg. Co., Unionville, Ct.
Knapp & Cowles Mfg. Co., Bridgeport, Ct.

Razors.
J. R. Torrey Razor Co., Worcester Mass.

Razor Strops.
Tower & Lamont, Rochester, N. Y.

Refrigerator Door Fasteners.
Conroy P. J. & Co., Philadelphia,

Refrigerator Trimmings.
Brainerd & Co., 97 Chambers St., N. Y.

Reloading Tools.
Ideal Mfg. Co., New Haven, Conn.

Rivets.
Disoway & Henderson, 165 Greenwich, N. Y.
Old Colony Rivet Co., Kingston, Mass.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend W. P. & Co., New Brighton, Pa.

Rolling Mill Machinery.
Lloyd-Booth Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.

Rolls, Chilled, Sand and Steel.
Garrison A. & Co., Pittsburgh, Pa.
Lloyd-Booth Co., Youngstown, Ohio.
Seaman, Sheets & Bliss, Pittsburgh.

Roofing.
Garry Iron Roofing Co., Cleveland, O.

Rope Snaps.
Pratt & Letchworth, Buffalo, N. Y.

Rules, *Manufacturers of.*
Stanley Rule & Level Co., 29 Chambers, N. Y.

Sash Balances.
Caldwell, W. H., Rochester, N. Y.
H. B. Hugunin Mfg. Co., Hartford, Conn.

Sash Cords and Chains.
Morton Thos., 65 Elizabeth, N. Y.
Smith & Egge Mfg. Co., Bridgeport.

Sash Lifters.
Brainerd & Co., 97 Chambers St.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clarin Mfg Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Graham, Jno. H & Co., 113 Chambers st., New York.
Ireland Mfg. Co., Cincinnati, O.
Ives H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Cohoes, N. Y.
Palmer Hardware Mfg. Co, Troy, N. Y.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Blake & Johnson, Waterbury, Ct.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Morrill, Chas., 79 Chambers St., N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon John & Sons, Cliff, N. Y
Howe Scale Co., Rutland, Vt.
Rienle Bros. Philadelphia.
Troemner, Henry.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Ct.
Eurich Hdw. Mfg. Co., Plantsville, Conn.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
Wm. H. Haskell Co., Pawtucket.
Miles F. S., 305 Quarry, Philadelphia
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Seneca Falls Mfg. Co., Seneca Falls, N. Y
King, O'Connor & Co., Baltimore, Md.

Scythe Stones and Whetstones
A. F. Pike Mfg. Co., Pike Stat'n, N.H.
Cleveland Stone Co., Cleveland, O.
Lake Huron Stone Co., Detroit and Chicago.

Shafting, *Makers of.*
Cresson Geo. V., Philadelphia, Pa.
Pierson & Co 24 to 27 West, N. Y.
Wood, Thos. & Co., Phila., Pa.

Shears, Iron.
E. W. Bliss Co., Brooklyn, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn.
Henry Seymour Cutlery Co., N. Y.
Scholinorn & Co., New Haven, Ct.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ills.

Shovels, Spades and Scoops.
Hussey, Binns & Co., Pittsburgh, Pa.

Shutter Worker.
Dodd Shutter Worker Co., 26 Church, N. Y.

Sinks.
Douglas W. & B., Middletown, Conn.

Skates.
Dame, Stoddard & Kendall, Boston, Mass.

Smelting Works.
Reeves Paul S., 700 S. Broad, Phila.

Speaking Tubes.
Ostrander W. R. & Co., N. Y.
Walsh Owen 105 Walker, N.Y.
Wolf ensak, J. F., Chicago, Ill.

Spelter.
Manning & Squier 111 Liberty, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ills.

Sporting Goods.
Shields, Jno. & Co., Brookline, Mass.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Mass
Sabin Machine Co., Montpelier, Vt
Titus & Babcock Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.

Spring Hinges.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., N. Y.

Stamping Works.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Strops.
Torrey J. R. & Co., Worcester, Mass,

Steam Hammers, &c., *Makers of.*
Dieneit & Eisenhardt, Philadelphia.
Dudgeon Richard 24 Columbia, N. Y.
Dunham W. P. & Co., Bellefonte Pa.
Long & Allstatter Co., Hamilton, O.

Steam Heating.
Broomell & Sanas, York, Pa

Steam Pumps, &c., *Manufacturers.*
Goulds Mfg. Co., 60 Barclay, N. Y.
Hooker-Colville Steam Pump Co., St. Louis, Mo
Hughes Steam Pump Co., Cleveland, O.
McGowan John A. & Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk.

Steam Traps.
Aller Amos, 109 Liberty, N. Y.

Steel Figures and Alphabets.
Stutsman J. M., 181 William, N. Y.

Steel Importers.
Abbott Jere & Co., N.Y. & Boston.
Hobson Francis & Son, 97 John, N. Y.
Jessop Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Parvin & Co., Philadelphia, Pa.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 85 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24 to 27 West, N. Y.
Whitney A. R. & Co., B'dway, N. Y.

Steel (Musket's Special).
Jones B. M. & Co., Boston.

Steel Manufacturers.
Bellaire Nail Works, Bellaire, Ohio.
Boger C. F., N. Y.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N.Y.
Frankford Steel Co., Philadelphia
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd., Pittsburgh, Pa.
Jessop Wm. & Sons, Sheffield, Eng., or John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Midvale Steel Co., Nicetown, Phila.
Miller, Metcalf & Parkin, Pittsburgh.
Moorhead-McCleane Co., Pittsburgh, Pa
Moss P. W., 55 John, N. Y.
Naylor & Co., 99 John, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland Wm & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Troy Steel and Iron Co., Troy, N.Y.
Wardlow S. & C., Sheffield, Eng
Wetherell Bros., 115 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wilson Hawksworth, Ellison & Co., Sheffield, England.

Steel, *Manufacturers' Agents.*
Beaver-Webb, J., 145 Broadway.
Bliss & Dickey, Philadelphia, Pa.

Steel Nails
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Standard Iron Co., Bridgeport, O.

Steel Spiral Springs, *Manufacturers.*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon John & Sons, N.Y.
Rowland Wm. & Harvey, Frankford.

Steel, Tool.
Bolton Steel Co., Canton, O.
Frankford Steel Co., Philadelphia.
Jessop Wm. & Sons, Sheffield, Eng. 91 John, N. Y.
Long John S., 4 Fletcher N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Steel Wire.
Hartman Steel Co., Ltd., Pittsburgh, Pa.

Stocks and Dies.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Jas. & Son, Troy, N. Y.

Strap Hinges.
Mann Jas. & Sons, Buffalo, N. Y.

Strops
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ills.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser W. A., Brockton, Mass.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., Fairhaven, Mass.
Auburn Tack Co., Auburn, N. Y.
Florence Tack Co., Florence, Mass
Disoway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren St., New York.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Truman, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Worswick Mfg. Co., Cleveland, Ohio.

Testing Machines.
Riehle Bros., Philadelphia.

Thill Springs.
Stiles Frost, Boston, Mass.

Toe Calks, Steel.
Burge P. F., Boston, Mass.

Tool Grinders.
Hall Mfg. Co., Phila., Pa.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
American Tool Co., West Houston St., N. Y.
Atlass & C. & Co., Indianapolis, Ind.
Brown, R. H. & Co., New Haven, Conn.
Bullock C. W., Springfield Mass.
Ellrich Haw. Mt. Co., Plantsville, Ct.
Hoague, J. H & Co., Chicopee Mass.
Humphrey Tool Co., Warren, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett L. S., Athol, Mass

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Steam and Gas Fitters.
Curtis & Curtis, Bridgeport, Conn.
Saunders' Sons, D., Yonkers, N. Y.

Transom Lifters.
Reiner F. A. & Co., Chicago, Ill.
Wollensak J. F., Chicago, Ill.

Trimmings, Refrigerator, &c.
Brainerd & Co., 97 Chambers, N. Y.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Rienle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Bridgeport Brass Co., 19 Murry, N. Y.

Tubes, Steel.
Long John S., Fletcher, N. Y.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn

Turnbuckles.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Type Writers.
Hammond Type Writer Co., 75-77 Nassau, N. Y.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Long John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
McNab & Harlin Mfg. Co., N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 23 Dey, N. Y.

Vulcanized Fibre.
Vulcanized Fibre Co., 14 Dey St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.

Washers.
Lanman, E. R. Columbus, O.
Lebanon Rolling Mills, Lebanon, Pa.
Mason Iron Co., Philadelphia, Pa.

Water Filters.
Gate City Stone Filter Co., 46 Murray street, New York.

Weather Strips.
Bosley, D. W. & Co., Chicago.

Well Machinery.
American Well Works, Peoria, Ill.
Goulds & Austin, Chicago, Ill.

Wheelbarrows.
Pugsley & Chapman, 8 Liberty, N Y

Wheels.
Quincy Metal Wheel Co., Quincy, Ills
L. A. Weston & Co., Syracuse, N. Y

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis John T. & Bros., Phil.

Window Screens.
Darby, Edw. & Sons, Philada., Pa
Queen Anne Screen Co., Burlington Vt.

Wire, *Manufacturers of.*
Cary & Moen, 234 W. 29th, N. Y.
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Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hartman Steel Co., Ltd, Pittsburgh, Pa
Howard & Morse, 45 Fulton N. Y.
Leicester Wire Co., Leicester, Mass.
Palmer Wire Mfg. Co., Palmer, Mass.
Prentiss Geo. W. & Co., Holyoke.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co. Trenton, N. J.
Washburn & Moen Mfg Co Worcester.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Clinton Wire Cloth Co., Clinton, Mass.
Darby Edward & Sons, Philadelphia.
Estey W. S., 71 Fulton, N. Y.
Howard & Morse 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.

Wire Cutters.
Cronk Hanger Co., Elmira, N. Y.
King, J. M. & Co., Watertown, N. Y

Wire Door Mats.
Barnum E. T, Detroit, Mich.

Wire Fences.
Howard & Morse, 45 Fulton, N. Y.

Wire Goods, *Manufacturers of*
Brooks M. S & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
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Knapp Bros., New York
R. Jenkins Mfg. Co. Pawtucket, R. I.
Ludlow Saylor Wire Co., St. Louis.
Wire Goods Co., Worcester.
Wickwire Bros., Cortland, N. Y.

Wire Machinery.
Adt John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Sweetser, W. A., Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
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Pittsburgh Wire Nail Co., Pittsburgh Pa.
Plymouth Mills, Plymouth, Mass.
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Wire Goods Co., Worcester
Truman W. E., Whitman, Mass.
Whitney A. R & Co., New York City.

Wire Rods, Steel.
Whitney A. R. & Co., N. Y.

Wire Rope, Iron and Steel Makers.
Broderick & Bascom, St. Louis, Mo.
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Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wood Engravers and Electrotypers.
Mugford A., Hartford, Conn.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood Working Machinery.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co Springfield, Mass.
Billings Spencer & Co., Hartford Conn.
Coes Wrench Co., Worcester, Mass.
Tower & Lyon, 95 Chambers, N. Y
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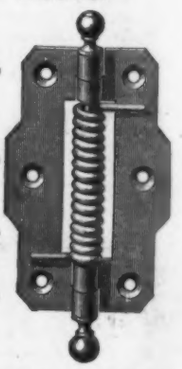

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